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# **Injury Fatalities and Hospitalizations**

**Among  
Massachusetts  
Children and Youth**

**1985-1994**

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Injury Prevention and Control Program

Division of Prevention

Bureau of Family and Community Health

Massachusetts Department of Public Health



# **INJURY FATALITIES AND HOSPITALIZATIONS AMONG MASSACHUSETTS CHILDREN AND YOUTH**

1985 - 1994

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Joseph Gallant, Secretary of Health and Human Services

David H. Mulligan, Commissioner, Massachusetts Department of Public Health

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Community Health

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## **ACKNOWLEDGMENTS**

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## **SECTION I: INTRODUCTION**



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## EXECUTIVE SUMMARY

### ***General trends***

Injuries caused 2,884 of the 10,992 fatalities among Massachusetts children age 19 and under from 1985 through 1994. Overall injury fatality rates declined from 23.1 per 100,000 in 1985 to 14.3 per 100,000 in 1994.

During a comparable time period (1986 through 1992), the National injury rate for children and youth age 19 and under was 30.2 per 100,000. The Massachusetts rate of 18.8 per 100,000 was the second lowest state child injury related fatality rate in the country. See Appendix A for a summary of the frequencies and causes of injury fatalities nationwide for 1992, the most recent year available. See Appendix B to compare Massachusetts statewide frequencies and rates with national data for the combined years of 1986 through 1992. Massachusetts rates for specific causes of injury fatalities were at or below national rates.

The number of unintentional injury fatalities dropped 53% between 1985 and 1994, in part due to the decline in motor vehicle related fatalities. Intentional injury fatalities increased in this same time interval. The number of homicides in 1994 was 1.5 times higher than in 1985. In 1994, the same number of children died from homicide as from motor vehicle occupant injuries.

### ***Age and Injuries***

Injury fatality rates were highest for youths 15-19 years old (36.1 per 100,000) and infants under 1 year (14.3 per 100,000). Children ages 1 through 14 had injury fatality rates ranging from 5 to 7.4 per 100,000. The likelihood of an injury being the cause of fatality (as opposed to a natural, medical condition) increased with age from 2% for infants under 1 year to 76% for teenagers 15 to 19 years old.

The leading cause of injury fatality for infants under 1 year was homicide. For children 1 to 4 years old, the leading cause was fire and burns. For children 5 to 9 years old, pedestrian injuries caused the most injury fatalities. Motor vehicle occupant injuries caused the most fatalities among youths 10 to 19 years old. However, ten times as many 15 to 19 year olds

died from motor vehicle occupant injuries compared to 10 to 14 year olds. Among youths 15 to 19 years old, motor vehicle occupant injuries caused more fatalities alone than the sum total of the next three leading causes: homicide, suicide, and motorcycle injuries.

### ***Gender and Injuries***

The male injury fatality rate was consistently 2.5 times higher than that for females between 1985 and 1994. Males were at higher risk from each specific injury cause. The gender difference was least pronounced among fire and burn fatalities and unintentional poisoning fatalities. The difference was most pronounced among motorcycle related fatalities.

### ***Race and Injuries***

Between 1989 and 1994, black children had overall injury fatality rates that were 3 times higher than white children. The overall Hispanic youth injury fatality rate was 1.5 times higher than those of white youth. The leading fatal injuries also differed by race. Among black and Hispanic youths, the leading cause of injury fatalities was homicide, which had a rate of 23.7 per 100,000 for blacks and 8.7 for Hispanics compared to 1.3 per 100,000 for white youths. Among white youths, the leading cause was motor vehicle related injury, with a rate of 4.5 per 100,000 compared to 3.5 per 100,000 for black youths. The rate of fire and burn fatalities among black youths (3.8 per 100,000) was more than 5 times higher than among white youths.

### ***Non-fatal versus Fatal Injuries***

Fatalities represented only a fraction of all injuries. In 1994, the ratio of non-fatal hospitalized injuries to fatal injuries was 24:1. For every unintentional poisoning fatality, there were 398 non-fatal poisoning hospitalizations. For every fall related fatality, there were 242 non-fatal fall injuries. For every bicycle related fatality, there were 100 non-fatal injuries. For every suicide, there were 25 non-fatal suicide attempt hospitalizations. The non-fatal to fatal injury ratio was lowest at 2:1 for drowning.

## INTRODUCTION

Injuries were responsible for 2,884 fatalities among Massachusetts children and youth ages 0-19 during the 10 year period from 1985 through 1994. During this same time, overall injury fatality rates among children and youth declined nearly 50%. The risk of an injury related fatality increases dramatically with age such that teenagers are three times more likely to die of injury than from natural illness or disability. Each injury related fatality is potentially preventable. In order to better understand these injuries and guide both ongoing and future preventive efforts, the Injury Prevention and Control Program (IPCP) of the Massachusetts Department of Public Health has prepared this report.

The IPCP has made significant contributions to injury control research through the development of injury prevention strategies and materials as well as promotion of injury prevention activities at local, state, regional, and national levels. This is accomplished through injury surveillance, reporting, education, and intervention. This report is central to the IPCP mission, not only as a ten year summary of injury fatalities in the state, but as a guide to future program efforts.

The primary source of data for this report was the Registry of Vital Records and Statistics, MDPH, which provided data in each injury category for analysis by gender, age, and race. These variables enable the identification of the populations that are at highest risk for each injury type. The pattern of teenage males at higher risk for most injury fatalities is consistent with other state and national patterns and defines a key target for prevention. The racial trends in injury fatalities, in particular the higher rates of intentional injury fatalities and fire fatalities among black youth, is also consistent with nationwide trends. Plotting these trends by gender, race and age bring into focus the areas of greatest need from a prevention standpoint.

Many of the trends reported here demonstrate significant gains in prevention. In particular, a dramatic reduction in fatal motor vehicle collisions



occurred over the ten year period; this trend was primarily responsible for the overall reduction in the injury fatality rate. Motor vehicle injury has been a major focus of the IPCP. Two components of the IPCP are: the Massachusetts Traffic Injury Prevention Project (MA TrIPP), a multi-faceted program designed to demonstrate effective means of increasing safety belt usage; and the Massachusetts Passenger Safety Program (funded from 1979-1995) which was a major source of passenger safety related training, technical assistance and education among health care providers, law enforcement officers, educators, businesses and others.

Similarly, poisoning fatalities are at an all time low. The Massachusetts Poison Control System, largely supported by the Department of Public Health through a contract managed by the IPCP, was regionalized in 1978 and operates a statewide, toll-free, 24 hour phone line for poisoning emergencies and poison information for the public and health care providers.

The rise in fatalities due to intentional violence emerges as a new trend. For the first time, the number of intentional injury fatalities equaled the number of motor vehicle fatalities among youths in 1994. The IPCP engages in collaborative efforts with other programs within MDPH, as well as other state and local programs targeted toward preventing child abuse, youth violence, sexual assault, and domestic violence. The patterns reported here will help to guide these efforts.

In conclusion, it is important to note that non-fatal injury hospitalizations far outnumber injury fatalities. While non-fatal injuries are not the focus of this report, data on non-fatal injury hospitalizations is reported for each injury type in order to place the fatalities in context. The overall proportion of non-fatal to fatal injury was 24:1. This statistic further fuels the IPCP efforts to understand and prevent injury among children and youth in the Commonwealth.

## Methodological Notes

### Data Sources:

Fatalities: Registry of Vital Records and Statistics, Massachusetts Department of Public Health

Hospitalizations: 1994 Uniform Hospital Discharge Data Set (UHDDS), Division of Health Care, Finance, and Policy (formerly Massachusetts Rate Setting Commission). This data is comprised of admissions to Massachusetts acute care hospitals between January 1 and December 31 of 1994.

Population data: Data for injury rate calculations is derived from the U.S. Federal Census and the MISER 1990 population projections. Additional information was provided by the Office of the Chief Medical Examiner and the Office of the State Fire Marshal.

### Notes:

The data in this report represent only those injuries resulting in fatality and/or hospitalization. Injuries that are treated in Emergency Departments, clinics, schools, or community health centers are not reported and thus, not included in this report.

Causes of Injury: Injury hospitalization data is based on external cause of injury coding (E-codes). Ninety-two percent of all injury hospitalization data for 1994 contained E-codes.

Small numbers: Cells in some tables and graphs contain small numbers; thus, rates, proportions, and trends based upon small numbers should be interpreted cautiously.

Race and Hispanic ethnicity: A separate question on Hispanic origin was added to the death certificate in 1989. For the purposes of this report, only the six years of data (1989-1994) in which race / ethnicity for both Vital Statistics Death data and for the US Census population data will be used when presenting race / ethnicity based rates.

Appendices: Appendix A contains a summary of the frequencies and causes of injury fatalities nationwide for 1992, the most recent year available. Appendix B compares Massachusetts statewide frequencies and rates with national data for the combined years of 1986 through 1992. Appendix C contains Census information. Appendix D contains frequencies for fatalities among Massachusetts youth for each year from 1985 to 1994. Appendix E contains frequencies of non-fatal injury hospitalizations among Massachusetts youth in 1994.

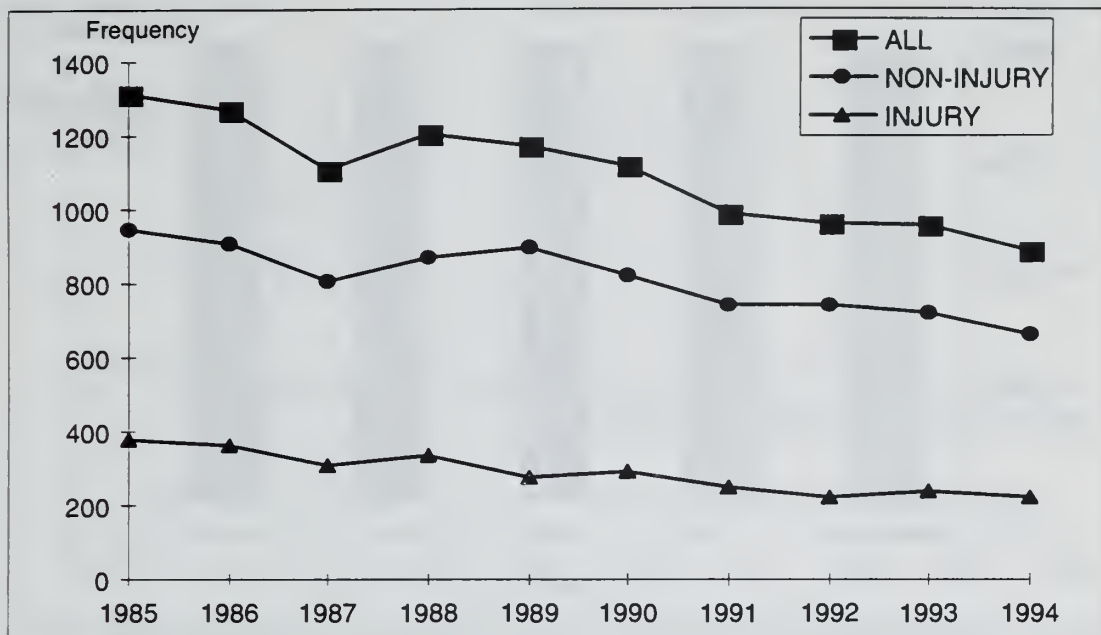




## **SECTION II: GENERAL TRENDS**



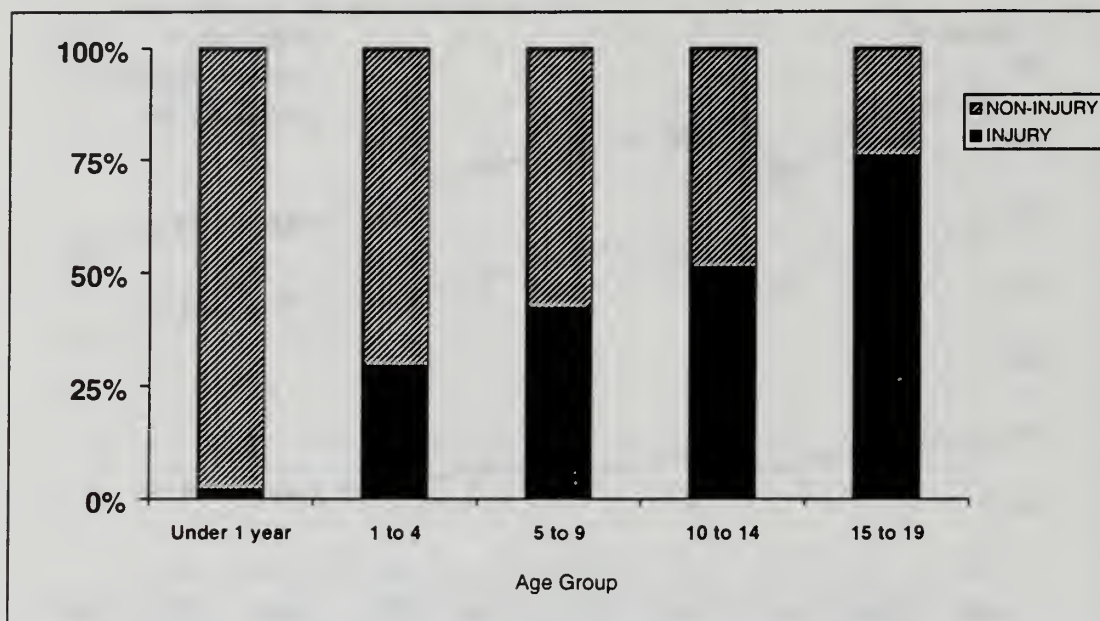
**Fatality Trends**  
**Massachusetts Children and Youth, Ages 0-19**  
**1985-1994**



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Over the past ten years, 10,992 fatalities occurred among Massachusetts children and youth; three quarters were due to non-injury causes (8,108) and one quarter were due to injuries (2,884). Non-injury causes of fatality include fatal illness or disease.
- The annual number of fatalities from all causes declined steadily from 1,313 fatalities in 1985 to 884 fatalities in 1994. The annual number of fatalities attributed to non-injury related causes decreased from 946 in 1985 to 660 in 1994. Injuries caused 378 fatalities in 1985 and 224 in 1994.

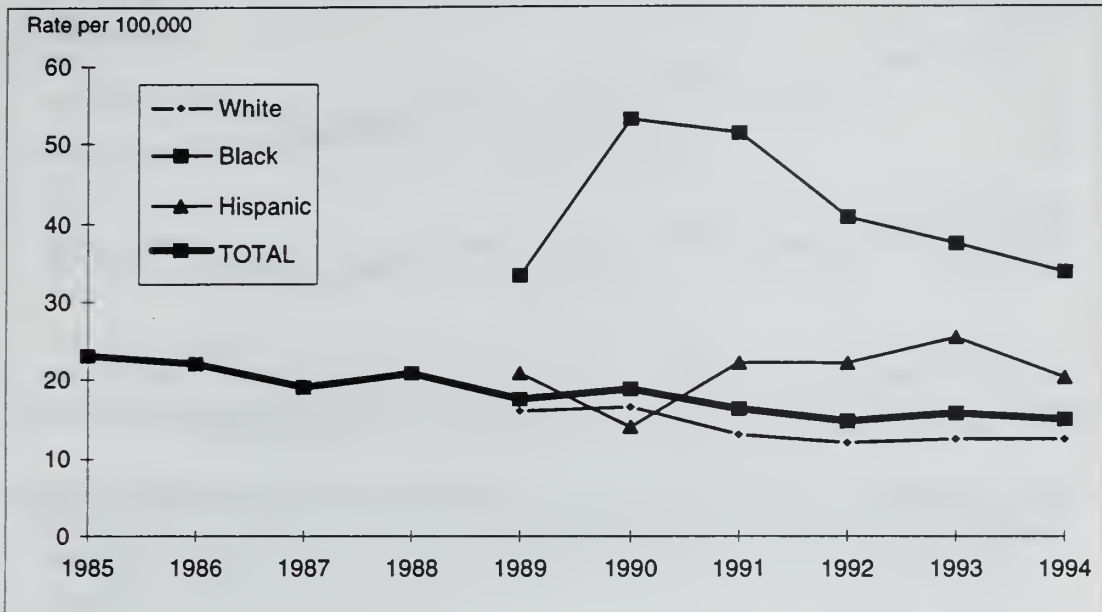
**Injury and Non-Injury Fatalities by Age  
Massachusetts Children and Youth, Ages 0-19  
1985-1994**



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Causes not related to injuries were responsible for more than 95% of fatalities in infants under age 1. The proportion of these fatalities declined after one year and caused only 25% of fatalities among 15 to 19 year olds.
- Injury fatalities increased with age. Teenagers (ages 15 to 19) were three times more likely to die from an injury than from non-injury causes.

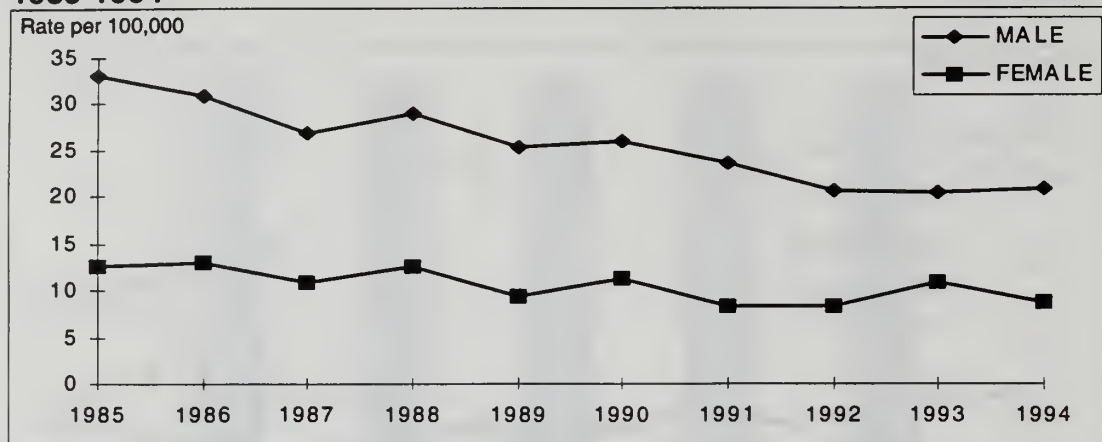
**Fatal Injury Rate  
Massachusetts Children and Youth, Ages 0-19  
1985-1994**



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Injury fatality rates declined nearly 50% for the entire age group 0-19, for all races, during the past ten years. The injury fatality rate was 23.1 per 100,000 in 1985 and 14.3 in 1994.
- This decline was due to a decrease in the rates of various unintentional injuries, despite recent increases in homicide rates. The most significant reduction in fatal unintentional injuries occurred in the category of motor vehicle related collisions.
- Black youth had between 1.5 and 4 times higher injury fatality rates than white youth over the past decade.
- The rate among Hispanic youth was nearly twice that of whites.

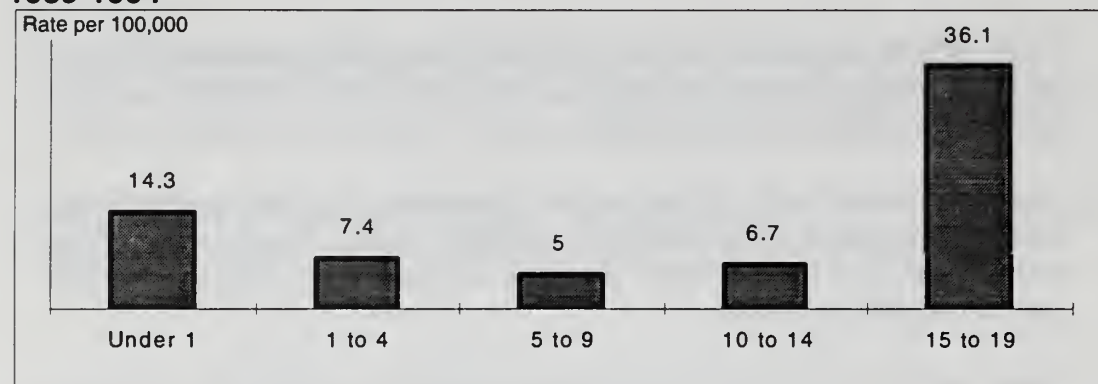
### Fatal Injury Rate by Gender Massachusetts Children and Youth, Ages 0-19 1985-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- The fatal injury rate for males was consistently two and a half times higher than for females over the decade surveyed.

### Fatal Injury Rate by Age Massachusetts Children and Youth, Ages 0-19 1985-1994

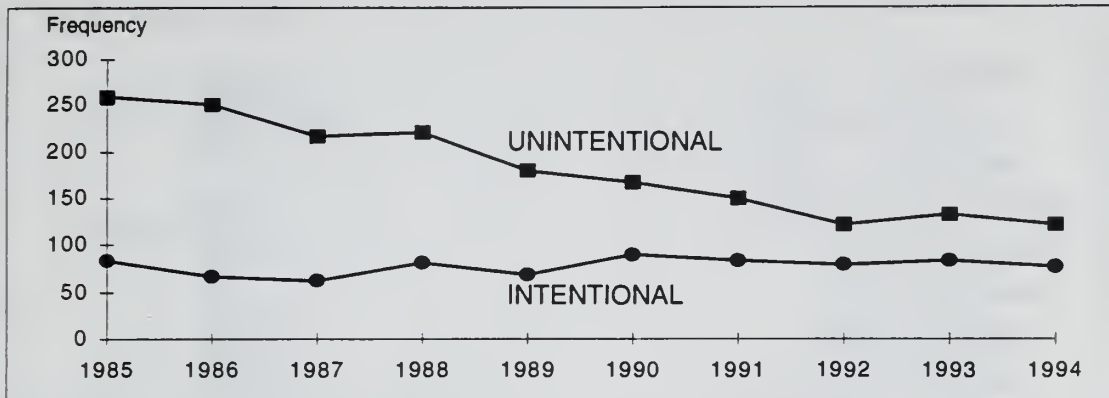


Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Overall fatality rates drop significantly once a child reaches 1 year of age, and, to a lesser degree, once a child reaches 5 years. But beginning at age 15, fatality rates rise sharply, primarily due to motor vehicle related injuries.
- Disease mortality rates are highest in infants under age 1 who are 40 times more likely to die of non-injury causes than from injury.
- Injury fatality rates are highest in teenagers ages 15-19 who are three times more likely to die of injury than from non-injury causes.



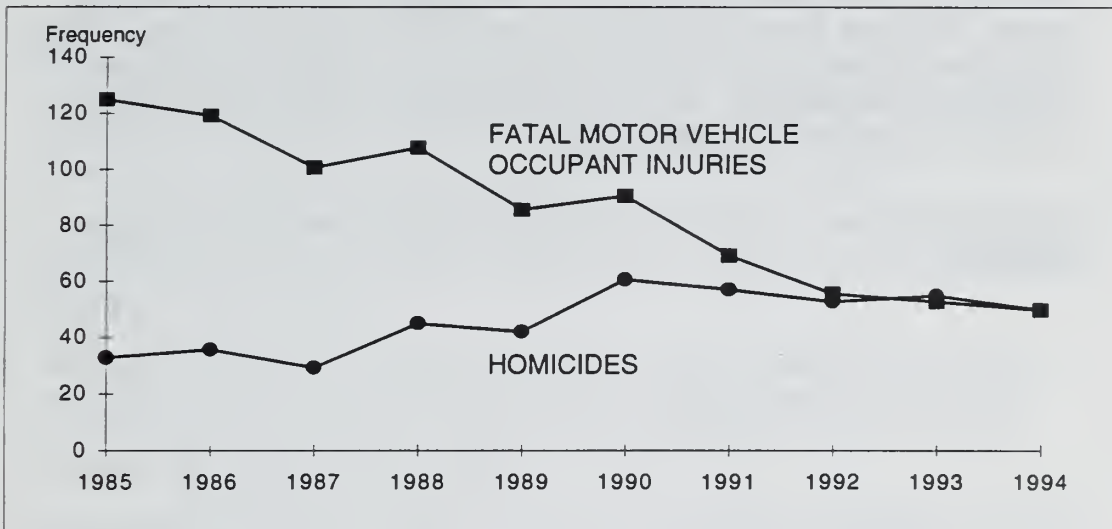
### Fatal Injuries by Intent Massachusetts Children and Youth, Ages 0-19 1985-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- As the annual number of unintentional injury fatalities dropped 50% over the past decade, overall intentional injury fatalities remained relatively stable in number. The steady decline in unintentional injury fatalities is associated with a notable decline in motor vehicle occupant fatalities.

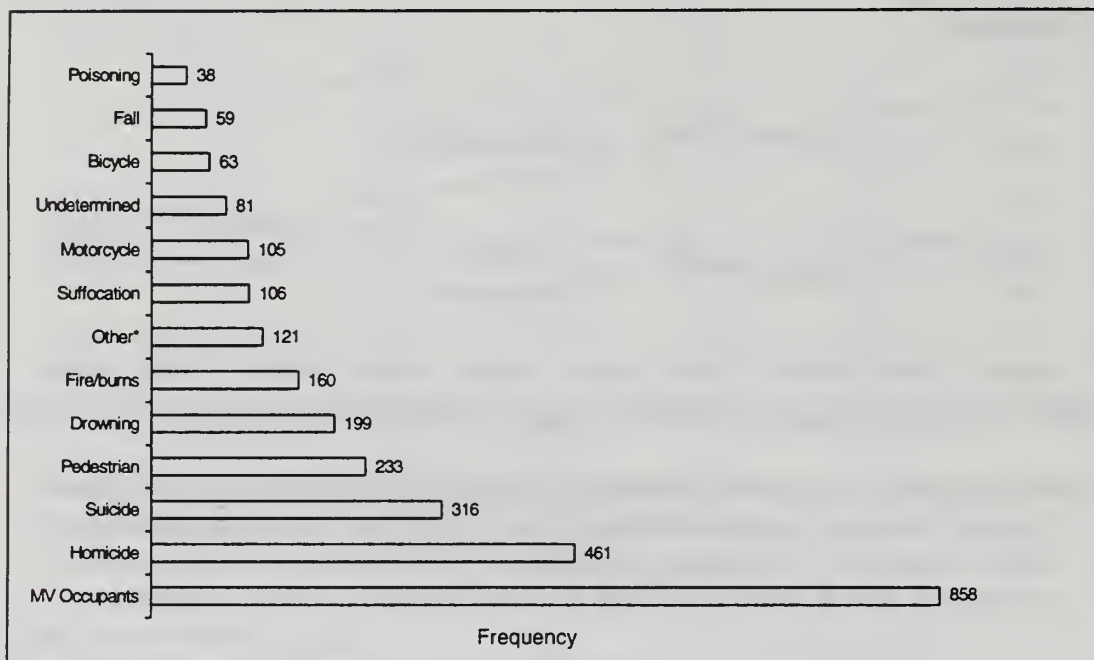
### Homicide and Fatal Motor Vehicle Occupant Injury Trends, 1985-1994 Massachusetts Children and Youth, Ages 0-19 1985-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- The steady increase in youth homicide resulted in equal numbers of homicide and motor vehicle occupant fatalities in 1994.

### Fatal Injuries by Cause Massachusetts Children and Youth, Ages 0-19 1985-1994

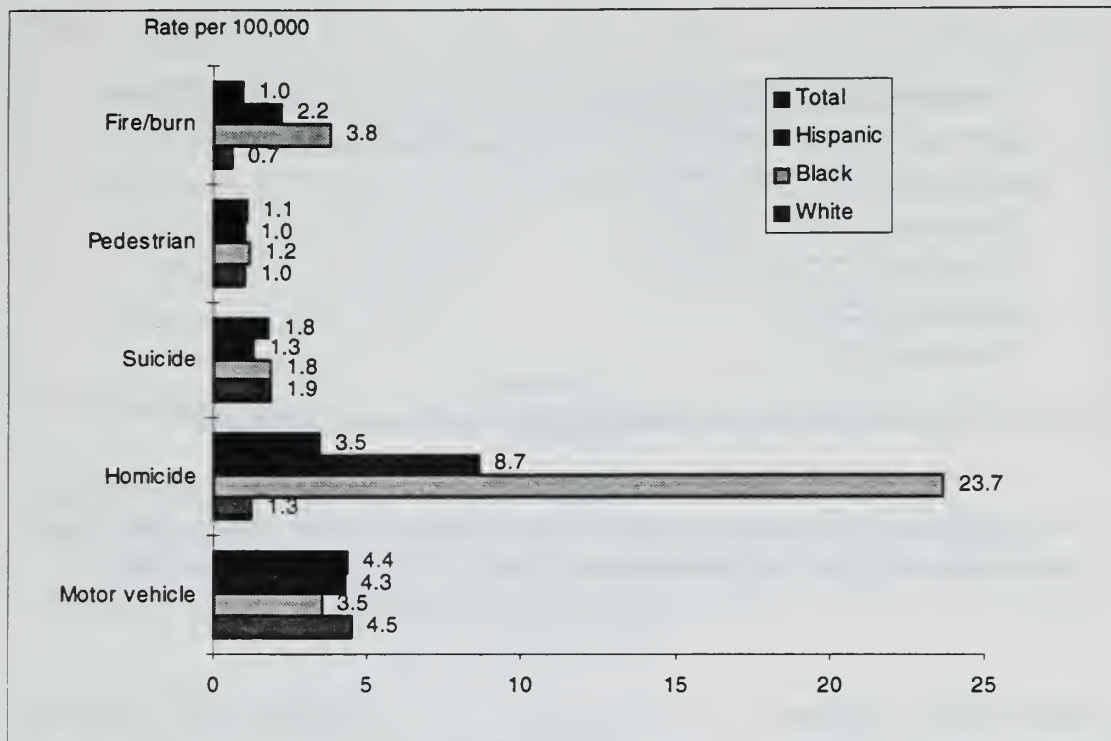


Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Over the 10 year period, 2,800 injury related fatalities occurred among youth. Of these, 31% were due to motor vehicle occupant injuries. When considering all motor vehicle related injuries (those involving a motor vehicle and a pedestrian, bicycle, or motorcycle), motor vehicles were involved in 45% of all injury fatalities.
- Intentional injuries (homicide and suicide) represented 28% of all injury fatalities.

\*see page 42 for listing of "other" causes

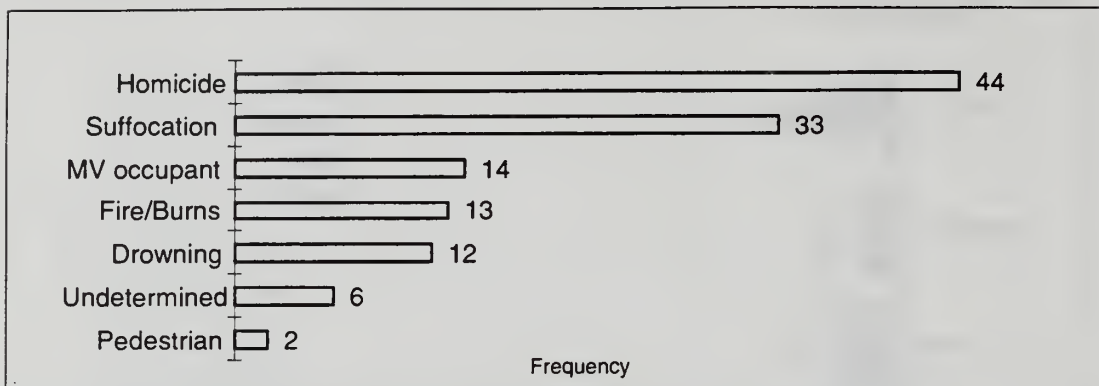
### Leading Fatal Injury Rates by Race / Ethnicity Massachusetts Children and Youth, Ages 0-19 1989-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Annual fatal injury rates differed greatly between black and white youths over the past six years. The overall fatality rate from injuries was 3 fold higher among black youths. Overall injury fatality rates were also one and a half times higher for Hispanic youths than for white youths.
- The distribution of cause of fatal injuries varies by race. The graphs above demonstrate the top five fatal injury causes and their rates for black, white, Hispanic, and all youths.
- Homicide posed the greatest risk of injury related fatalities to black and Hispanic youths during the last ten years. Although homicide was the fourth leading injury cause of fatality among white youths, the rate was 1/18 the rate among black youths.
- The suicide rate among white youths was greater than the white homicide rate.
- Motor vehicle occupant injuries caused the most injury related fatalities among white youths.

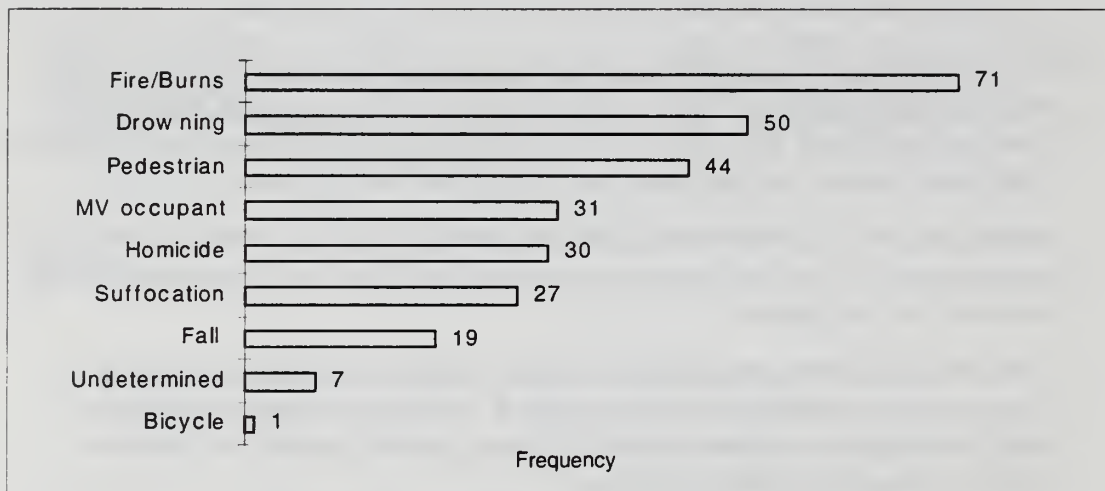
**Leading Fatal Injuries  
Massachusetts Infants, Under Age 1 year  
1985-1994**



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Homicide was the leading cause of injury fatality among infants less than 1 year old during the ten year period.

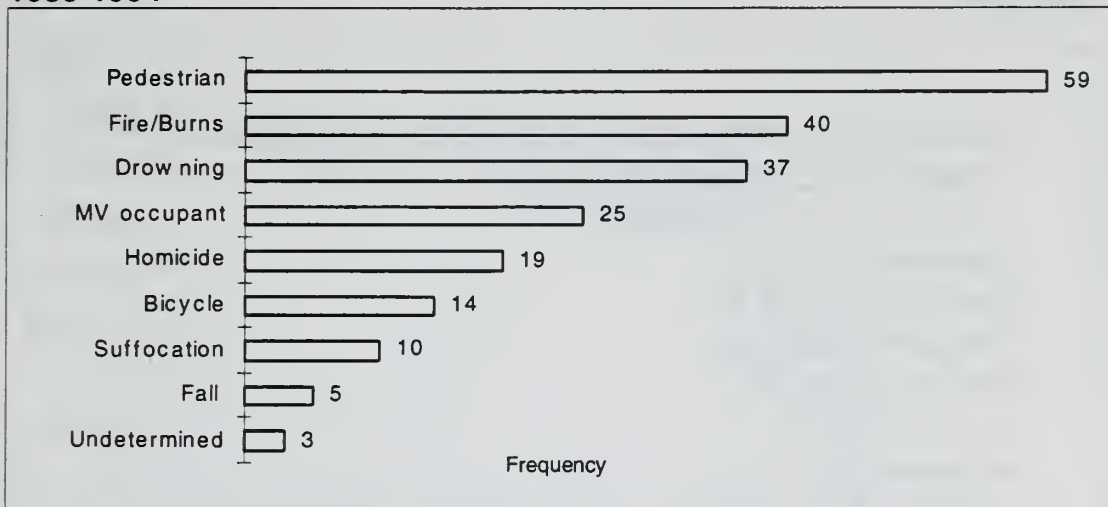
**Leading Fatal Injuries  
Massachusetts Children Ages 1 to 4 years  
1985-1994**



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Fires and burns were the leading cause of injury fatality among children 1 to 4 years old during the decade surveyed.

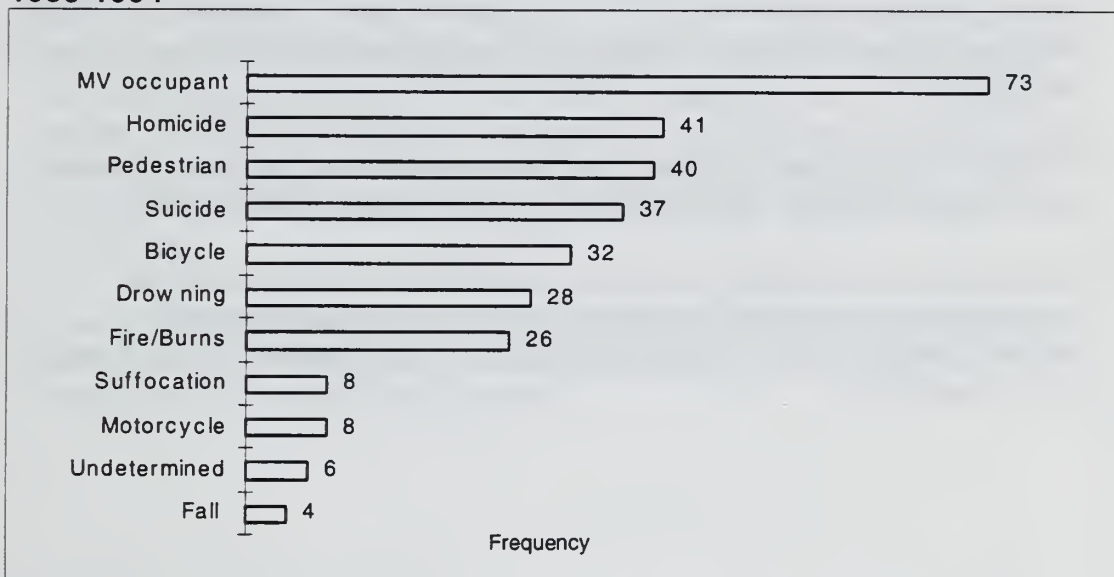
**Leading Fatal Injuries**  
**Massachusetts Children Ages 5 to 9 Years**  
**1985-1994**



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Pedestrian injuries were the leading cause of injury fatality among children 5 to 9 years old during the ten year period.

**Leading Fatal Injuries**  
**Massachusetts Children Ages 10 to 14 years**  
**1985-1994**

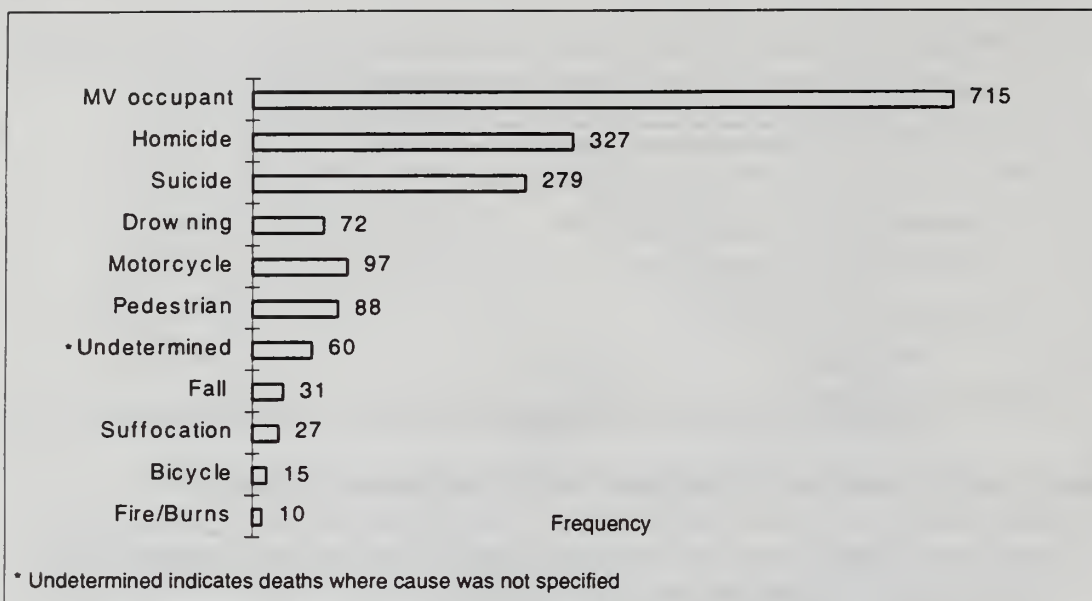


Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Motor vehicle occupant injuries were the leading cause of injury fatality among children 10 to 14 years old during the ten year period.



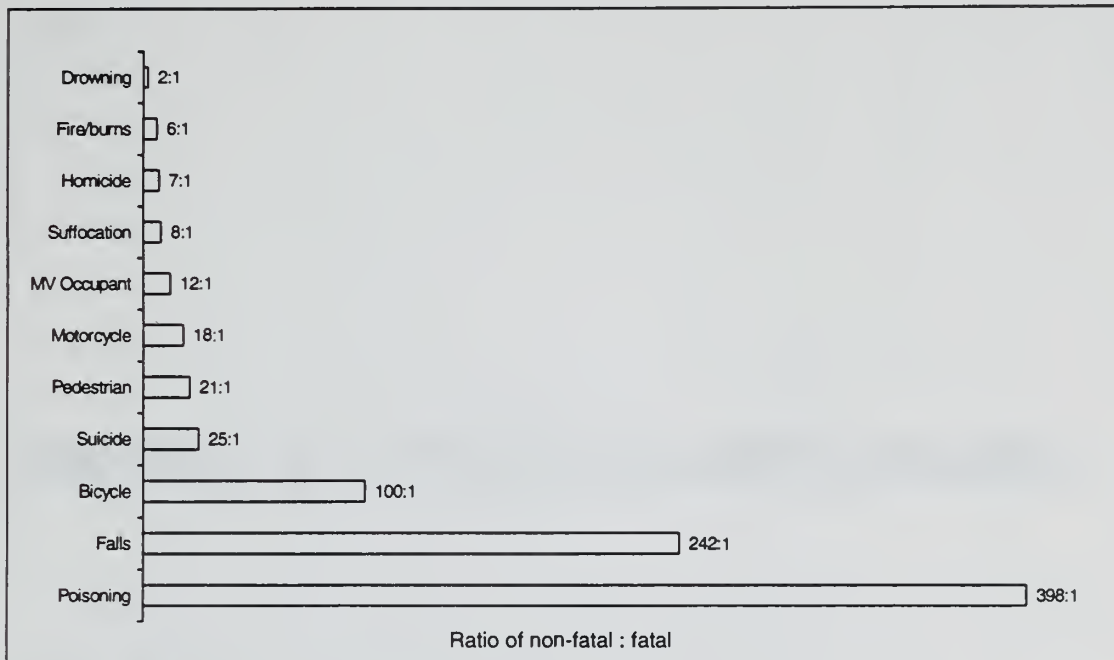
### Leading Fatal Injuries Massachusetts Youths, Ages 15 to 19 1985-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Motor vehicle occupant injuries were the leading cause of injury fatality among teenagers ages 15 to 19 in the past ten years. Five times as many teenagers died from motor vehicle occupant injuries than children under 15 years of age.
- Overall, motor vehicle occupant injuries caused more fatalities in this age group than homicide and suicide combined in the ten year period.
- The numbers of fatalities for each type of injury were higher among teenagers than any other age group, except for fire related fatalities (highest among 1-4 year olds) and bicycle related fatalities (highest among 10-14 year olds).

**Ratio of Non-Fatal Hospitalized Injuries to Fatal Injuries  
Massachusetts Children and Youth, Ages 0-19  
1994**



Sources: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics  
Massachusetts Division of Health Care, Finance and Policy

- For every child fatally injured, there are more who are hospitalized with non-fatal injuries. The ratio of non-fatal to fatal injury varies by specific cause. In 1994, this ratio was smallest for drownings; for every drowning death, there were two hospitalizations for non-fatal drownings. The highest ratio in 1994 was for fall related injuries and unintentional poisonings.
- The non-fatal injuries depicted here represent hospitalizations only; the number of injuries treated at home or in a clinic, doctor's office, or emergency department is not known.

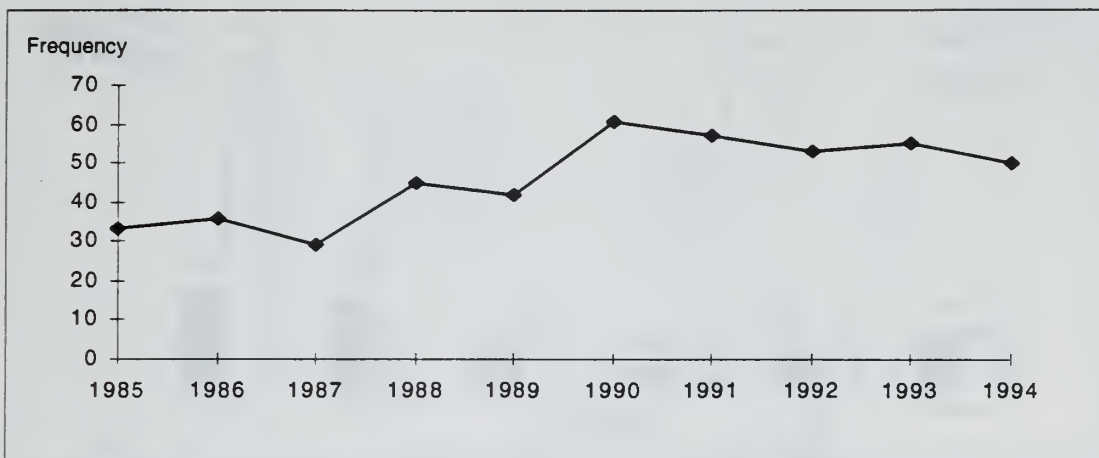




## **SECTION III: SPECIFIC INJURY CAUSES**



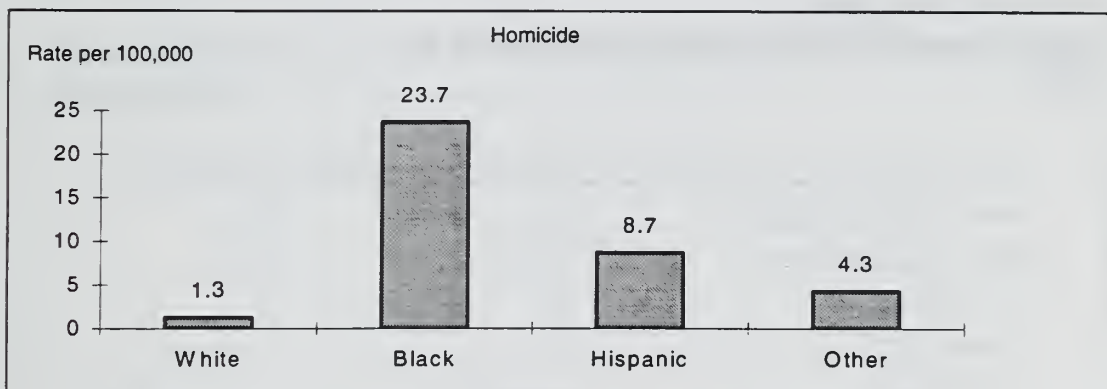
### Homicide Trend Massachusetts Children and Youth, Ages 0-19 1985-1994



Source: Massachusetts Dept. of Public Health

- The annual number of youth homicides has increased overall over the ten year period, doubling from 33 in 1985 to a peak of 61 in 1990. Since 1990, the number has decreased to 50 in 1994, a 52% increase over 1985.

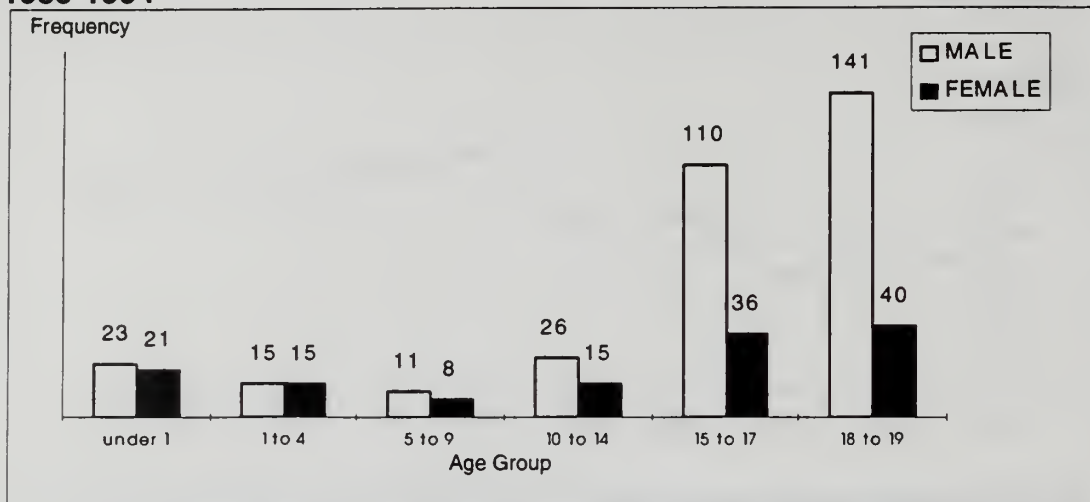
### Homicide Rate by Race / Ethnicity Massachusetts Children and Youth, Ages 0-19 1989-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- In the six year period between 1989 and 1994, the homicide rate for black youths was 18 times higher than for white youths, and the rate among Hispanic youth was 6 times higher than whites.

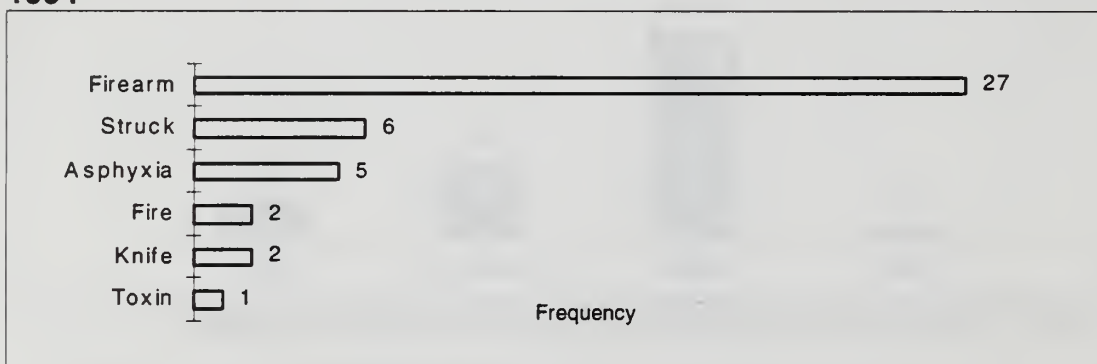
## Homicides by Age and Gender Massachusetts Children and Youth, Ages 0-19 1985-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- More than 70% of all youth homicide victims were age 15 or older.
- Overall, 70% of victims were male. In victims under age 9, the number of males and females was equal. After age 9, the ratio of male to female increases to three-to-one by the age of 18.
- The proportion of teenage victims increased over time. In 1985, 64% of youth homicide victims were ages 15-19 compared to 78% in 1994.

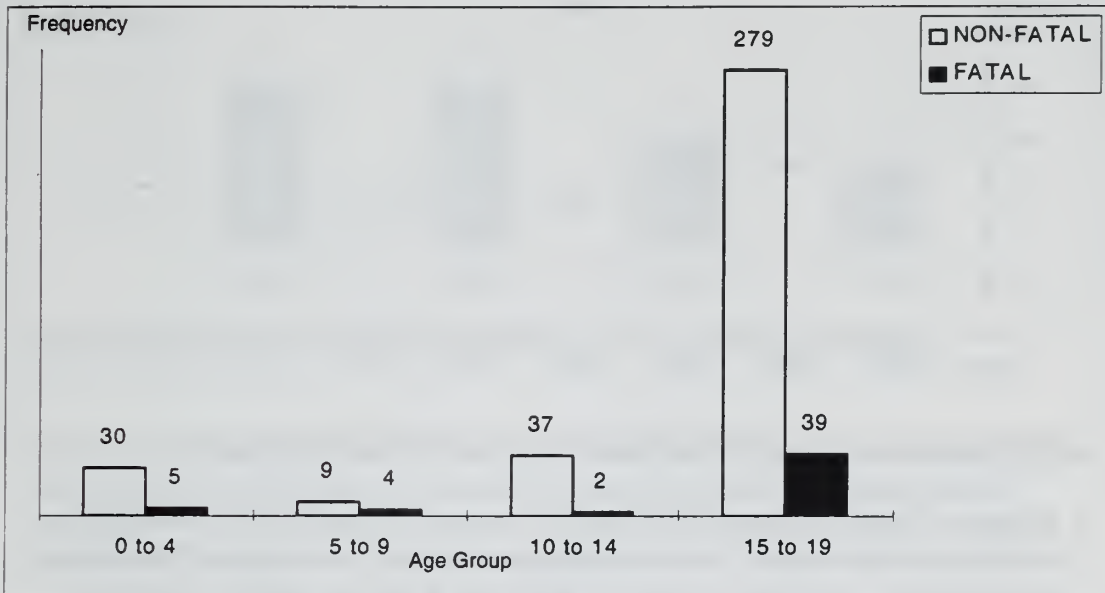
## Method of Homicide Massachusetts Children and Youth, Ages 0-19 1994



Source: Office of the Chief Medical Examiner

- In 1994, firearms were used in 63% of youth homicides. Over 90% of the firearms used were handguns.

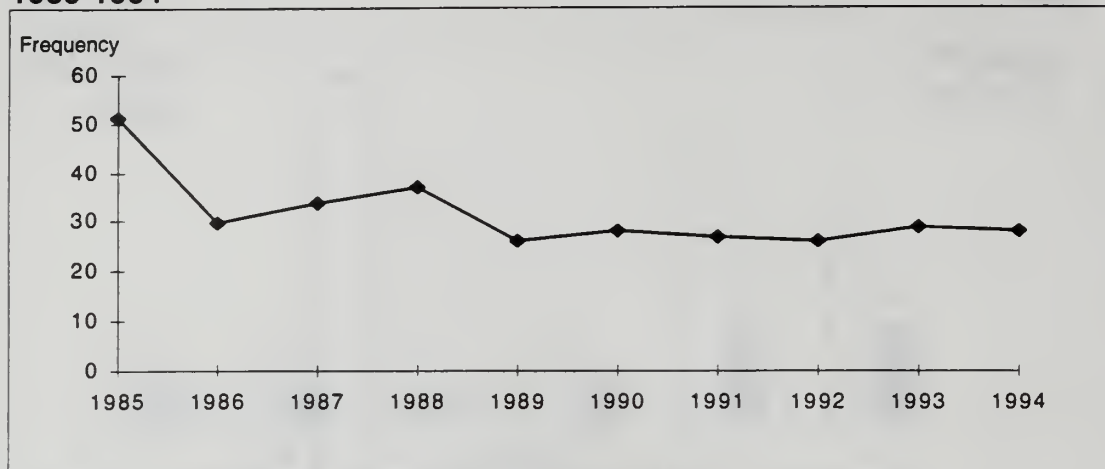
### Non-Fatal and Fatal Assaultive Injuries by Age Massachusetts Children and Youth, Ages 0-19 1994



Sources: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics  
Massachusetts Division of Health Care, Finance, and Policy

- While 50 homicides occurred among youths in 1994, there were 355 hospitalizations for non-fatal assault related injuries.
- For every 1 death, 7 injuries occurred.
- The age distribution was similar between homicides and non-fatal assault related injuries.

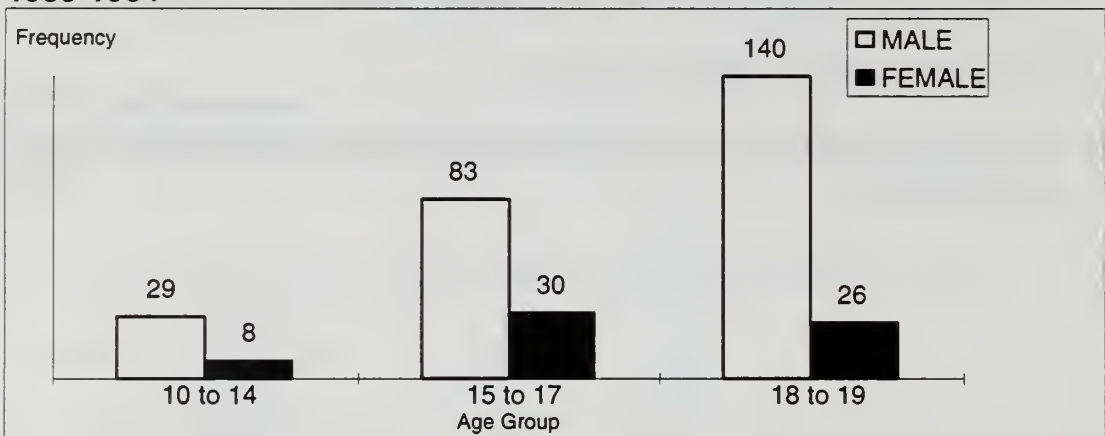
## Suicide Trend Massachusetts Children and Youth, Ages 0-19 1985-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Between 1985 and 1994, 316 youths committed suicide; in 1994, 28 youths died by suicide. While there was a steady increase in homicides over the past ten years, suicides remained stable in number over this same time, with approximately 25 to 30 occurring annually.

## Suicides by Age and Gender Massachusetts Children and Youth, Ages 10-19 1985-1994

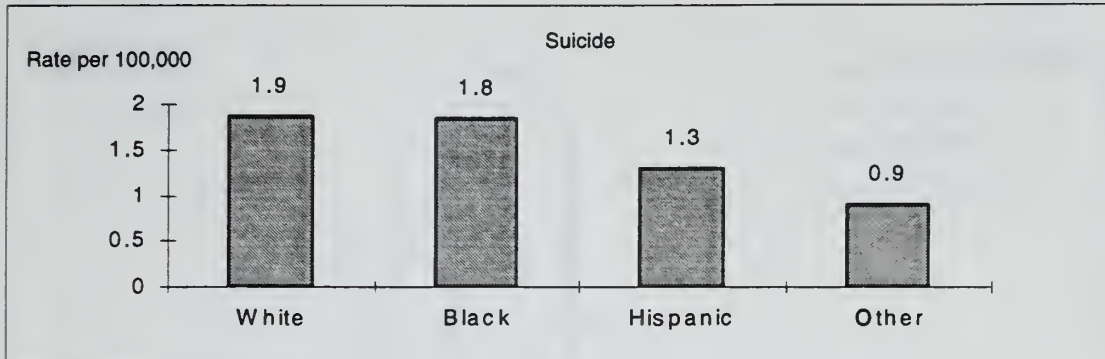


Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Overall, 80% of suicide victims were male. The proportion of males increased with victim age. Among 18 to 19 year olds, five times as many victims were male than female.
- Twelve percent of victims were 14 years or younger.



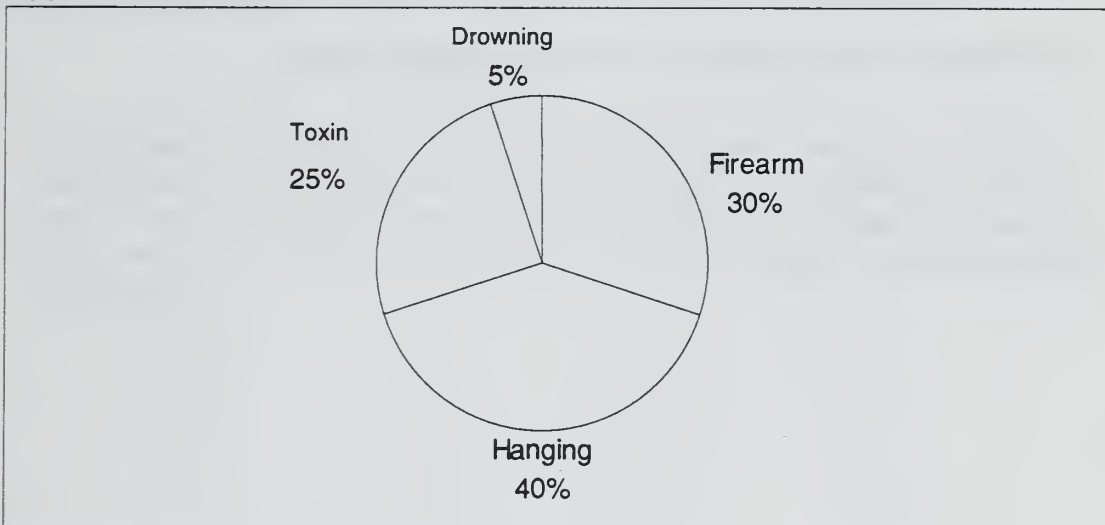
### Suicide Rates by Race / Ethnicity Massachusetts Children and Youth, Ages 0-19 1989-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Since 1989, there were 12 times more suicides among white youths than among black youths and 14 times higher more than Hispanic youths. However, suicide rates were only slightly higher among white youths compared to black and Hispanic youths.

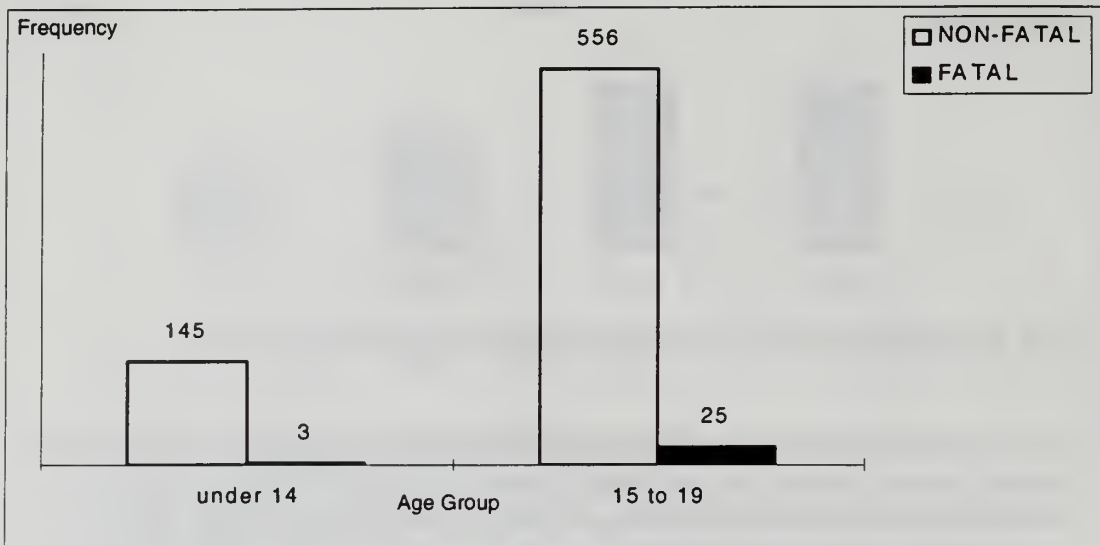
### Method of Suicide Massachusetts Children and Youth, Ages 0-19 1994



Source: Office of the Chief Medical Examiner

- Forty percent of youth suicides in 1994 were by hanging. Thirty percent were by firearms, of which 88% were handguns.
- Antidepressant medication was used in the majority of toxin related suicides.

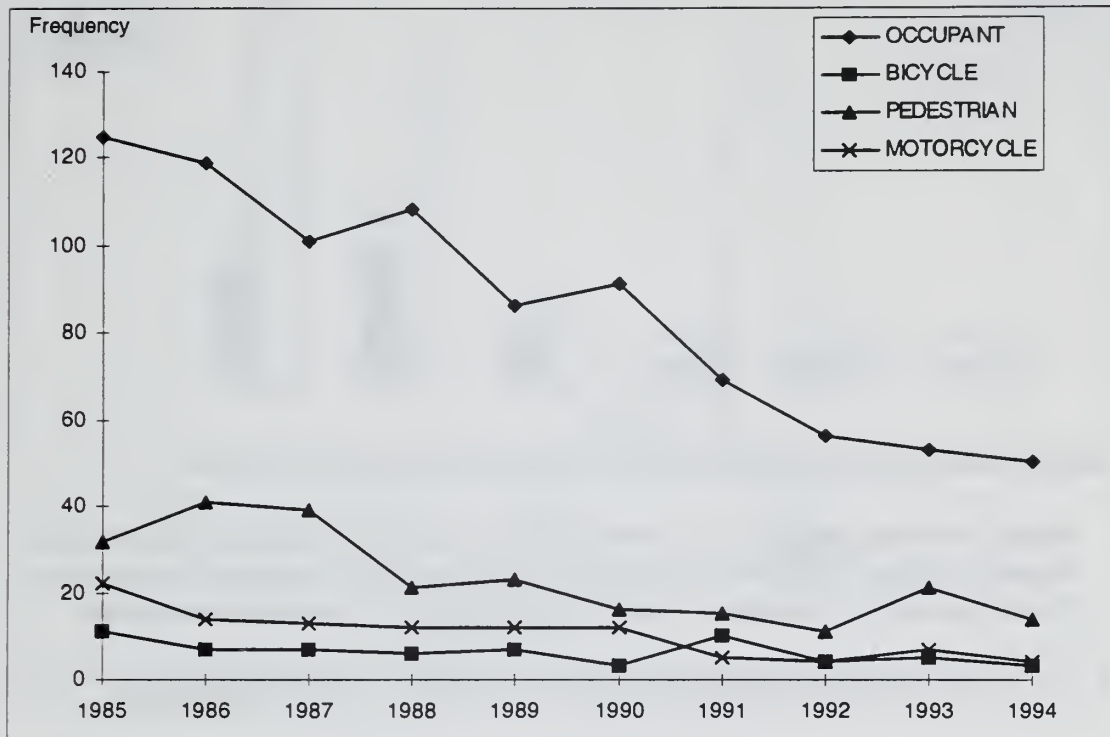
**Non-Fatal and Fatal Intentional Self-Inflicted Injuries  
Massachusetts Children and Youth, Ages 0-19  
1994**



Sources: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics  
Massachusetts Division of Health Care, Finance, and Policy

- While 28 fatal suicides occurred in 1994, there were 701 hospitalizations of youths for suicide attempts and self-inflicted injuries.
- For every 1 death, at least 25 non-fatal injuries occurred.

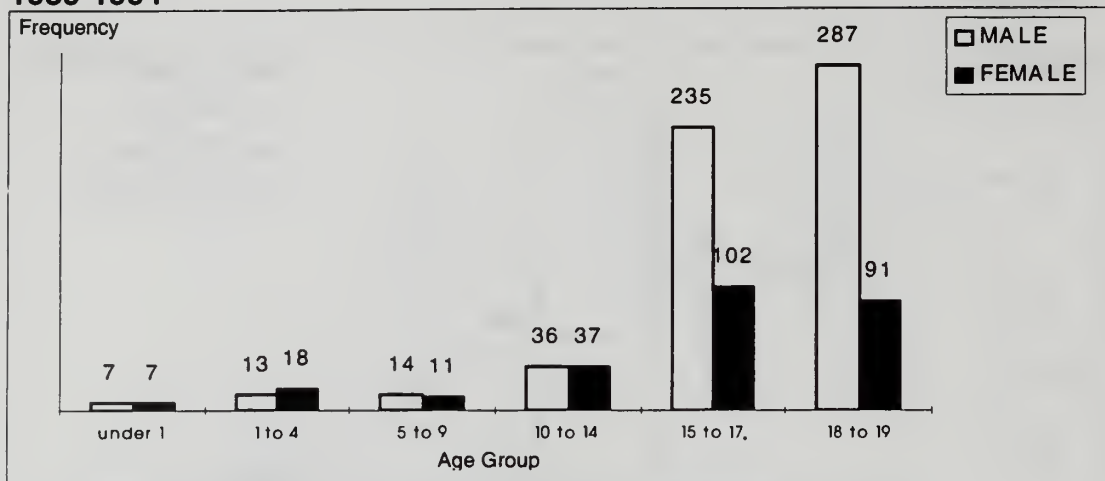
**Motor Vehicle Related Fatalities**  
**Massachusetts Children and Youth, Ages 0-19**  
**1985-1994**



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Youth fatalities from all motor vehicle related injuries declined by nearly two thirds between 1985 and 1994 (from 190 to 71). Specifically, motor vehicle occupant fatalities dropped 60%, motorcycle fatalities dropped over 80%, pedestrian fatalities dropped over 70%, and bicycle fatalities dropped over 50%.

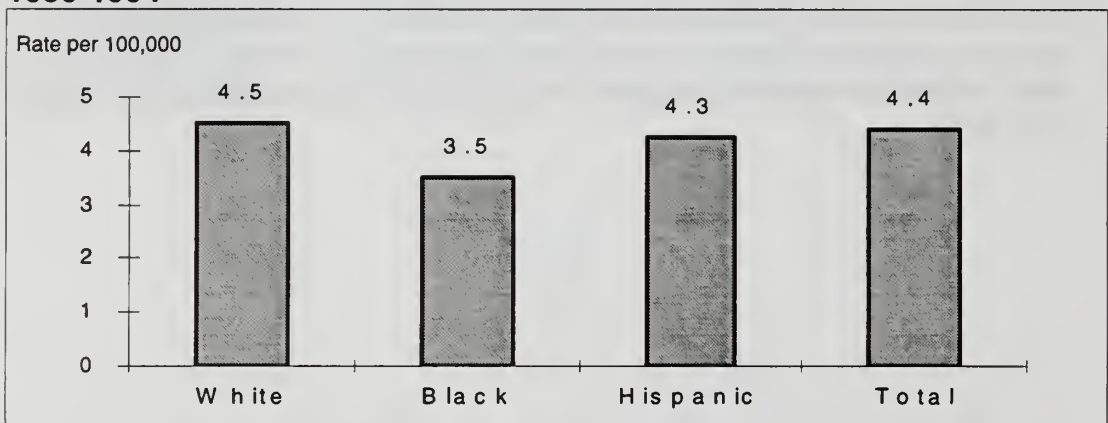
**Motor Vehicle Occupant Fatalities by Age and Gender  
Massachusetts Children and Youth, Ages 0-19  
1985-1994**



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Nearly seventy percent of all motor vehicle occupant fatalities were male. Among children age 14 and under, the ratio of male to females was equal. But in youths 15 and older, nearly three-quarters of victims were male.
- Over 80% of motor vehicle occupant victims were 15 to 19 years old.

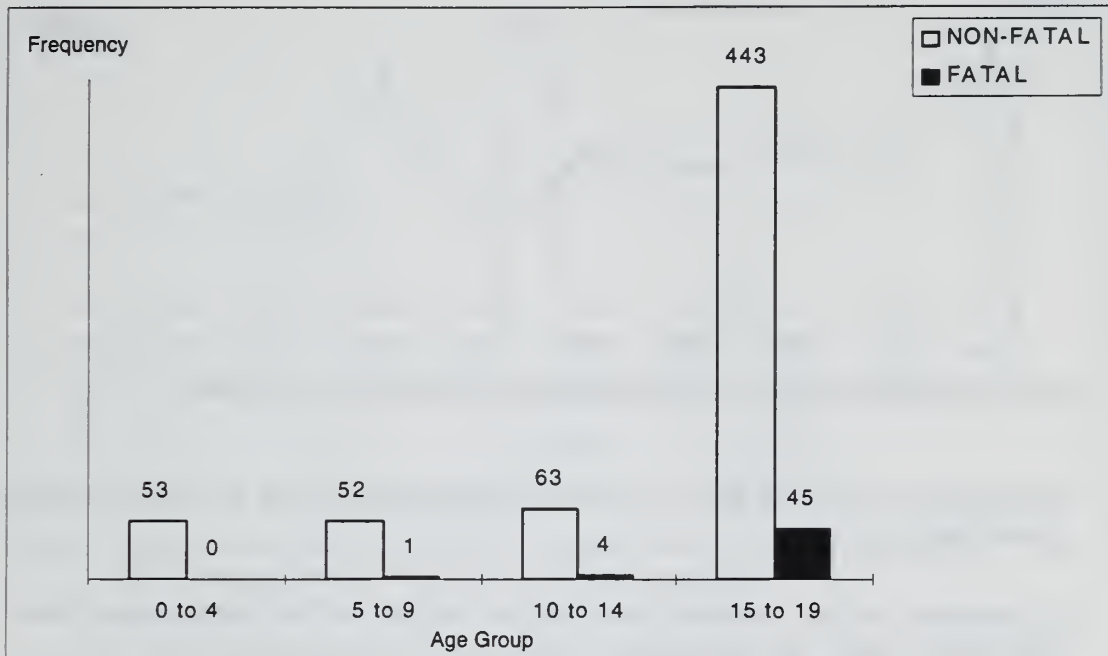
**Motor Vehicle Occupant Fatality Rates by Race / Ethnicity  
Massachusetts Children and Youth, Age 0-19  
1989-1994**



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- While 10-15 times as many white youths died in motor vehicle crashes as black and Hispanic youths, the fatality rates are only slightly higher.

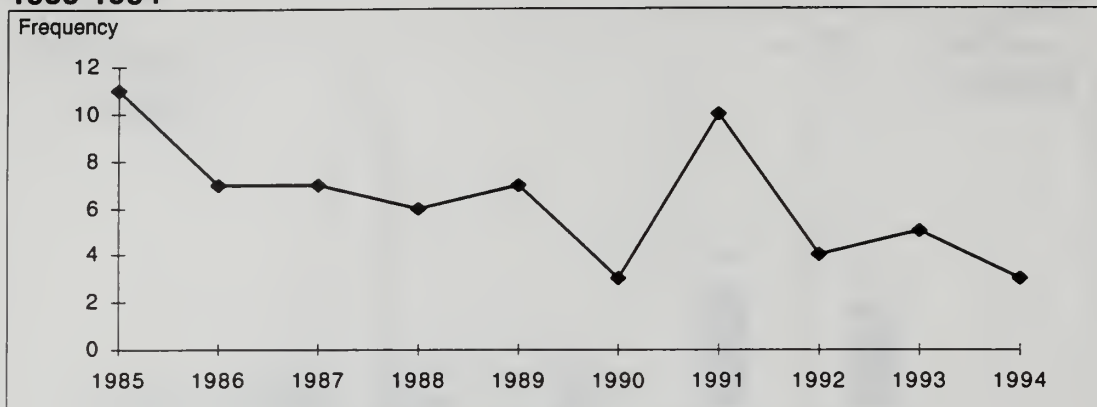
**Non-Fatal and Fatal Motor Vehicle Occupant Injuries  
Massachusetts Children and Youth, Ages 0-19  
1994**



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics  
Massachusetts Division of Health Care, Finance, and Policy

- While 50 youths died from motor vehicle occupant injuries in 1994, there were 611 hospitalizations for non-fatal injuries.
- For every 1 death, 12 injuries occurred.
- While only 5 (10%) of the fatalities occurred in the age group of children 14 years and younger, 168 (28%) of the non-fatal injuries occurred in this same age group.

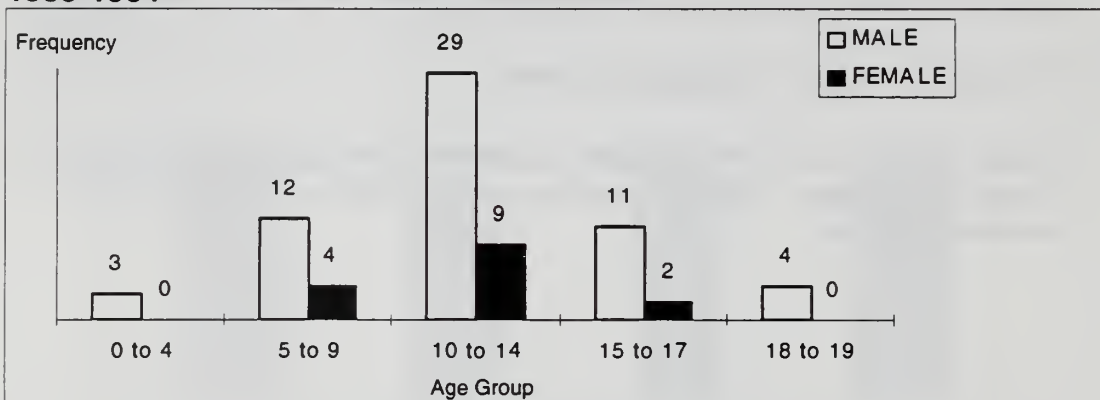
**Bicycle Related Fatalities  
Massachusetts Children and Youth, Ages 0-19  
1985-1994**



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Each year between 3 and 11 youth bicyclists were struck by motor vehicles and killed.
- In addition, bicycle fatalities occur without motor vehicle involvement; every year since 1985, one non-motor vehicle bicycle fatality has occurred, except in 1990 when there were none.

**Bicycle Related Fatalities by Age and Gender  
Massachusetts Children and Youth, Ages 0-19  
1985-1994**

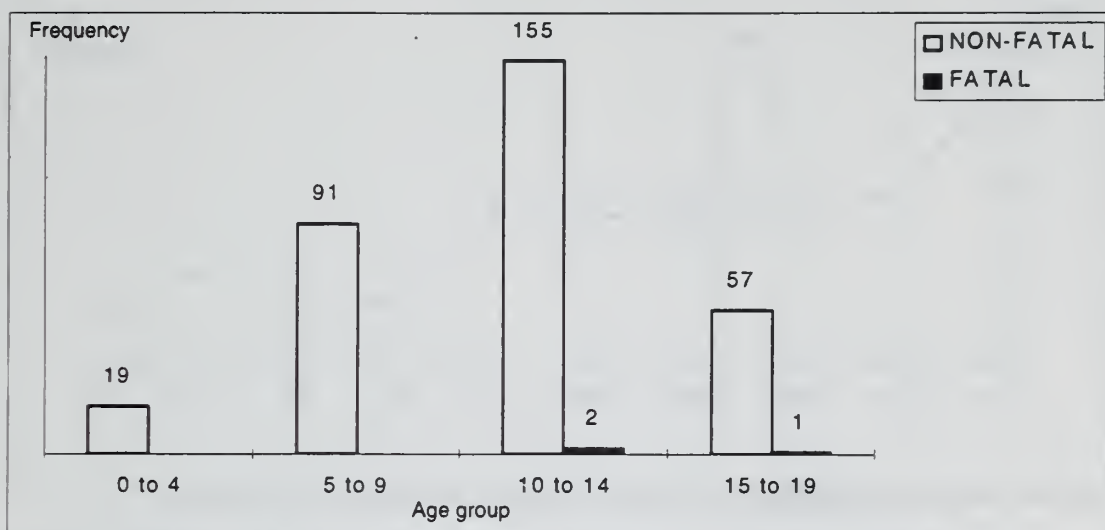


Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Half of all young bicyclists who died after being struck by motor vehicles were ages 10 to 14.
- Eighty percent of all victims were male.



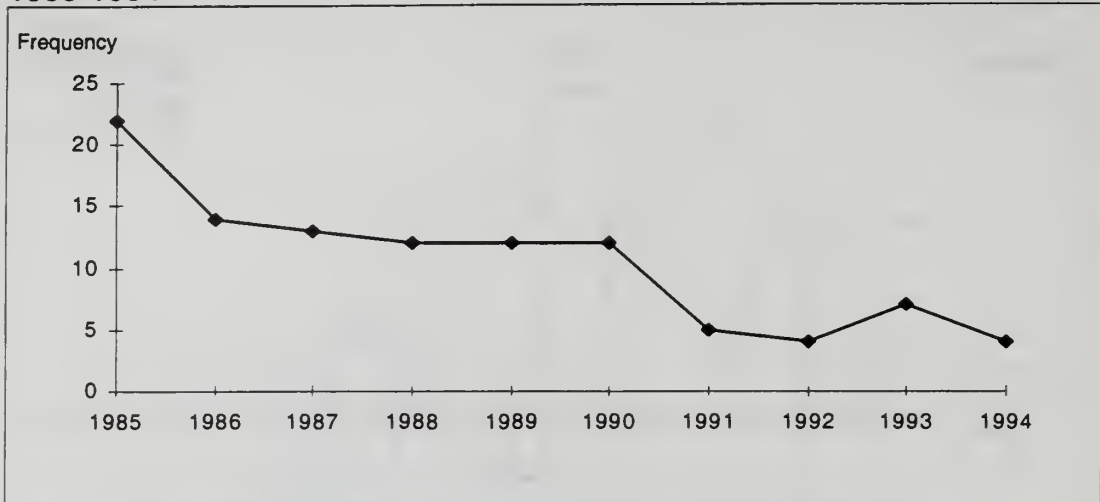
**Non-Fatal and Fatal Bicycle Injuries  
Massachusetts Children and Youth, Ages 0-19  
1994**



Sources: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics  
Massachusetts Division of Health Care, Finance, and Policy

- While 3 fatal bicycle injuries (both motor vehicle related and non related) occurred in 1994, there were 322 hospitalizations for non-fatal bicycle injuries among youth.
- For every 1 death, approximately 100 injuries occurred.

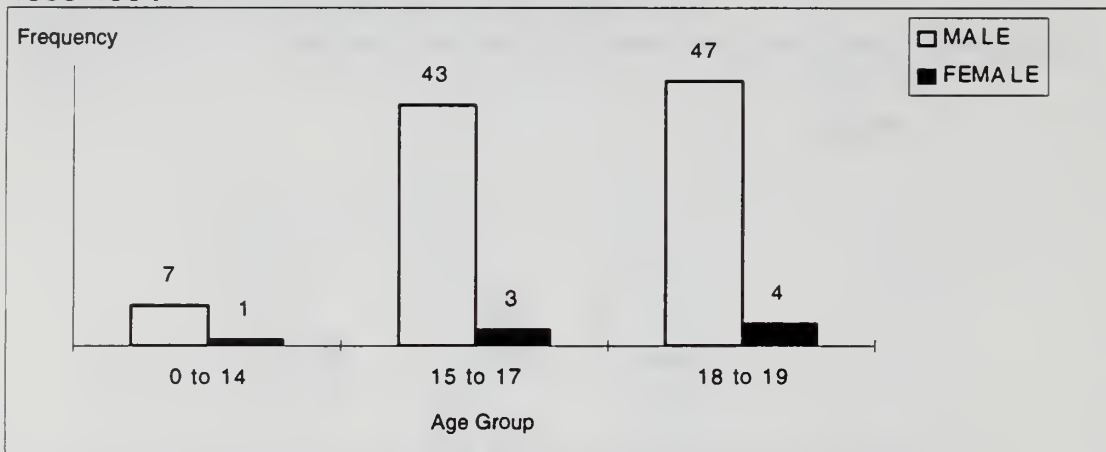
**Motorcycle Related Fatalities  
Massachusetts Children and Youth, Ages 0-19  
1985-1994**



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Motorcycle fatalities among youths declined by eighty percent in the ten year period. In 1994, there were 4 motorcycle fatalities.

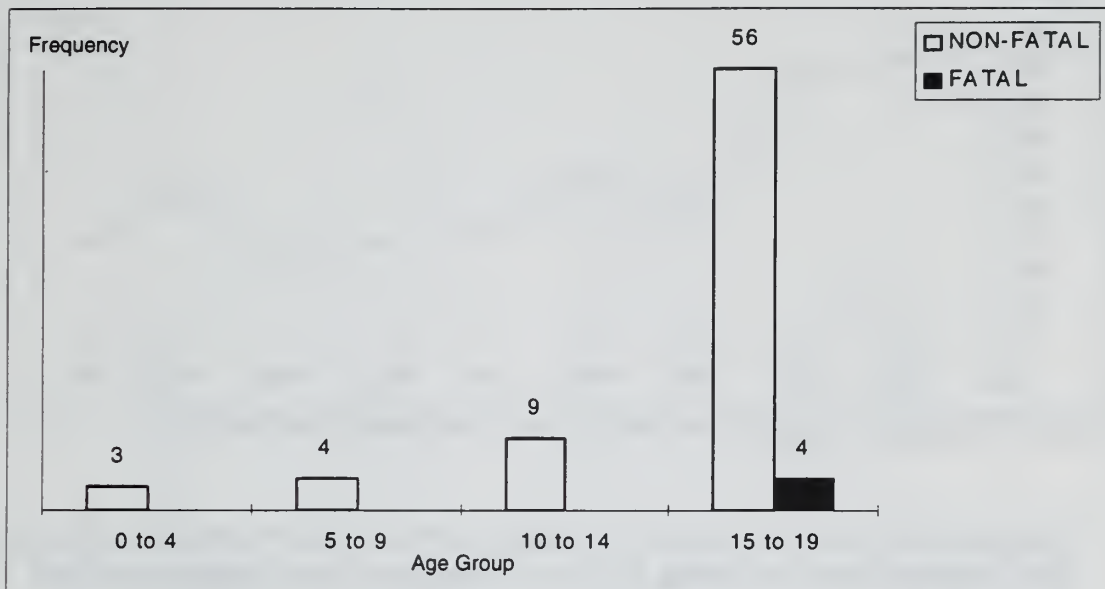
**Motorcycle Related Fatalities by Age and Gender  
Massachusetts Children and Youth, Ages 0-19  
1985-1994**



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Over ninety percent of motorcycle fatalities were among males.
- Although motorcycle fatalities were concentrated among older teenagers, almost ten percent occurred in children ages 10 to 14 years.

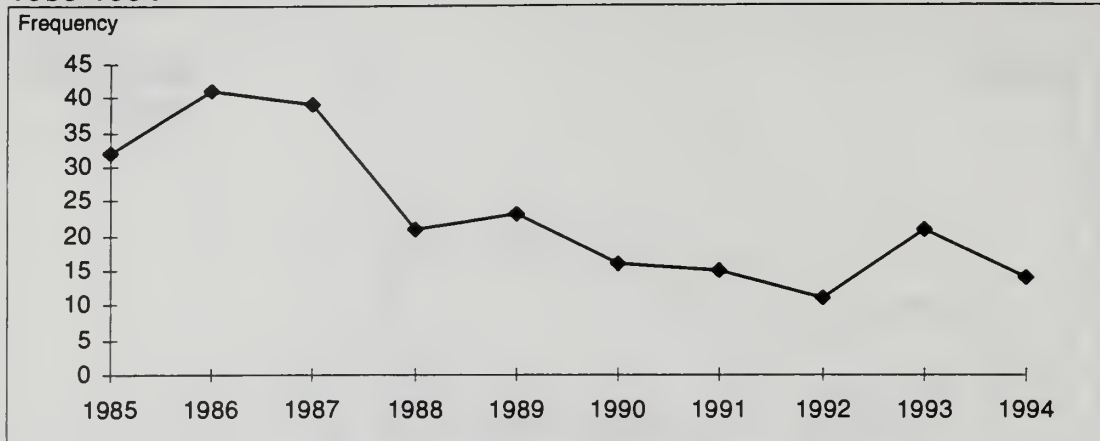
**Non-Fatal and Fatal Motorcycle Injuries  
Massachusetts Children and Youth, Ages 0-19  
1994**



Sources: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics  
Massachusetts Division of Health Care, Finance, and Policy

- While 4 fatal motorcycle injuries occurred among youths in 1994, there were 72 hospitalizations for non-fatal motorcycle injuries.
- For every 1 death, 18 injuries occurred.
- Of note, 3 hospitalizations were among children age 4 and younger.

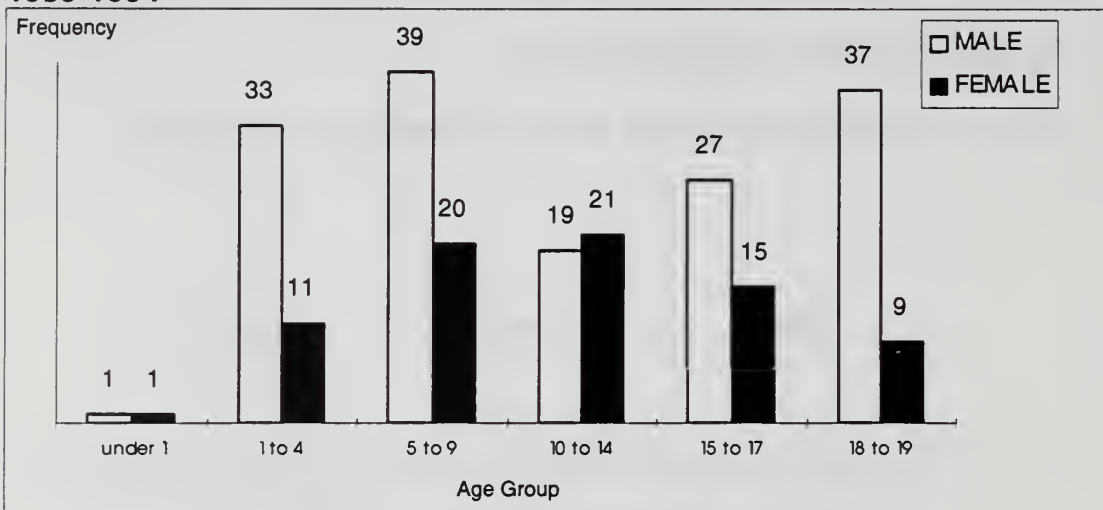
### Pedestrian Fatalities Massachusetts Children and Youth, Ages 0-19 1985-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- The number of young pedestrians killed by motor vehicles declined by over 50% over the past ten years. In 1994, there were 14 pedestrian fatalities. Two-thirds were male.

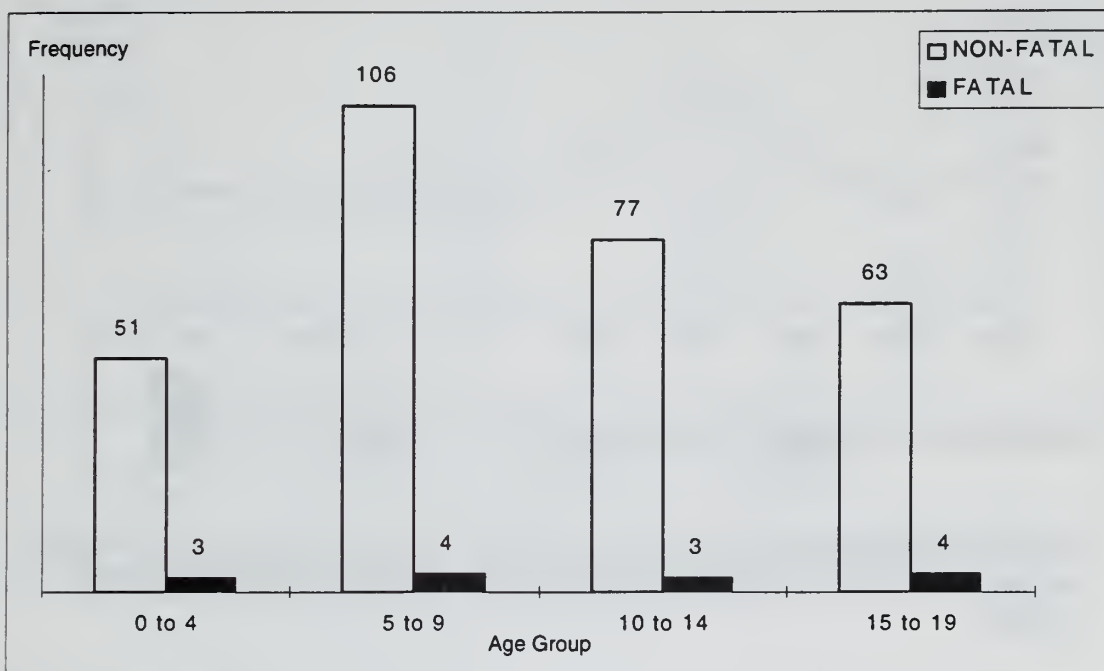
### Pedestrian Fatalities by Age and Gender Massachusetts Children and Youth, Ages 0-19 1985-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Two-thirds of all youth pedestrian fatalities were male. Among the males, four in ten fatalities were ages 15 through 19.

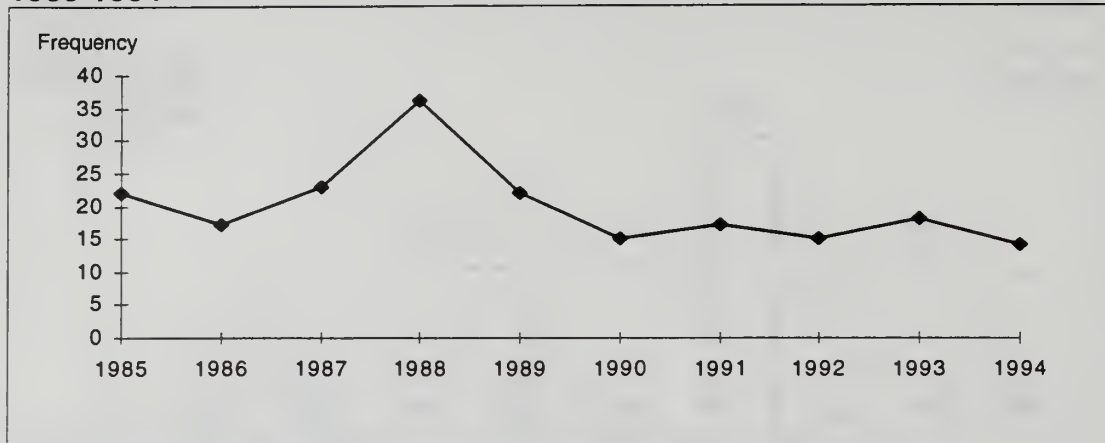
### Non-Fatal and Fatal Pedestrian Injuries by Age Massachusetts Children and Youth, Ages 0-19 1994



Sources: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics  
Massachusetts Division of Health Care, Finance, and Policy

- While 14 pedestrian injury fatalities occurred among youths in 1994, there were 297 hospitalizations for non-fatal pedestrian injuries.
- For every 1 death, 21 injuries occurred.

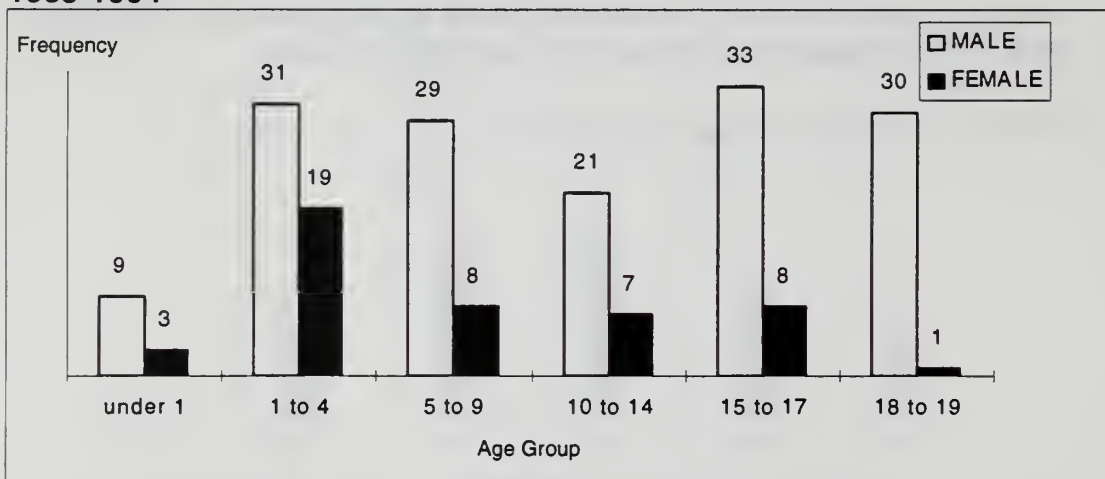
## Drowning Fatalities Massachusetts Children and Youth, Ages 0-19 1985-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Nearly 20 drownings occurred annually among youths during the ten year period; this trend has been relatively stable, with the exception of 1988 (n=36).

## Drowning Fatalities by Age and Gender Massachusetts Children and Youth, Ages 0-19 1985-1994

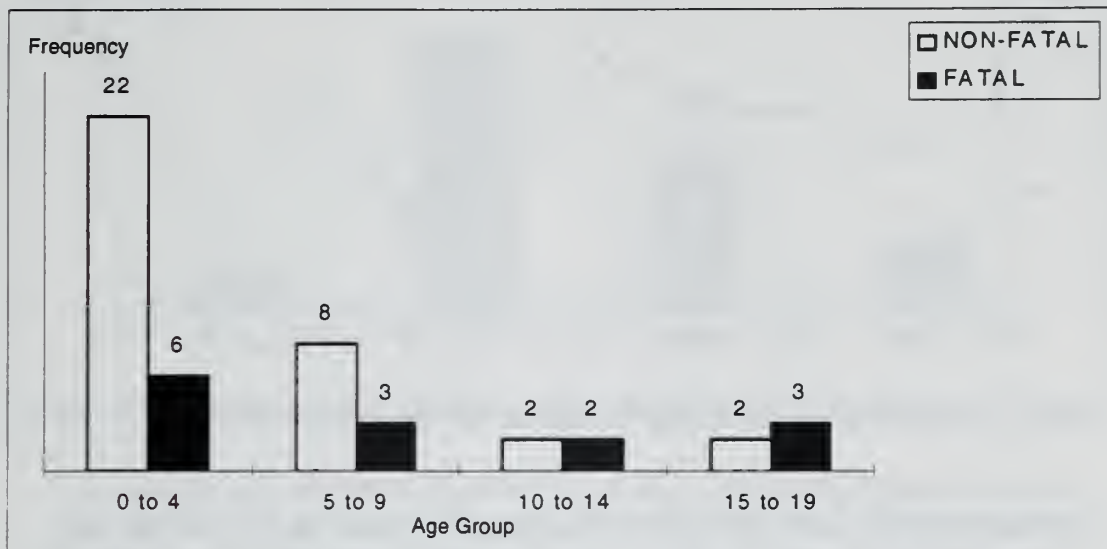


Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Three quarters of drowning victims were male. Female drowning fatalities decrease after age 4.



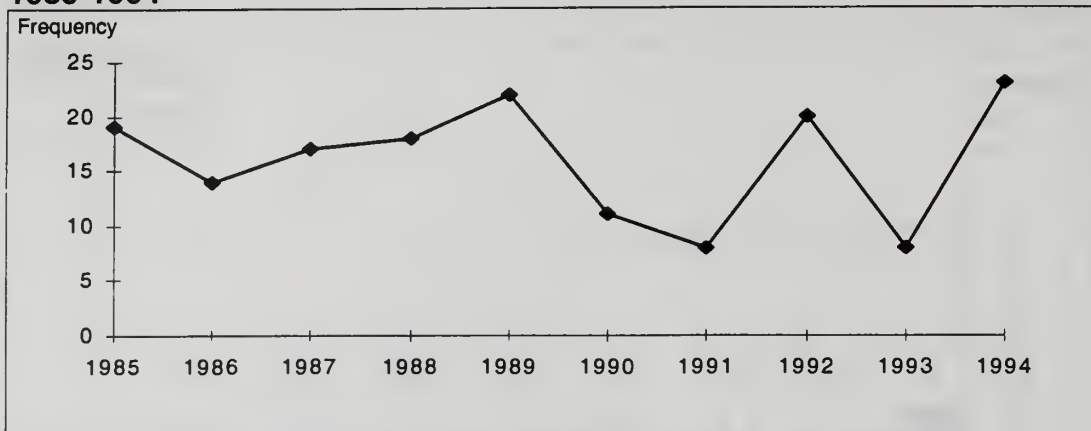
**Non-Fatal and Fatal Drownings by Age  
Massachusetts Children and Youth, Ages 0-19  
1994**



Sources: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics  
Massachusetts Division of Health Care, Finance, and Policy

- While 14 fatal drownings occurred among youths in 1994, there were 34 hospitalizations for non-fatal drownings.
- The age distribution of fatal drownings over the past decade was roughly equal. Nearly two-thirds of the non-fatal drownings occurred in children 4 years and younger.

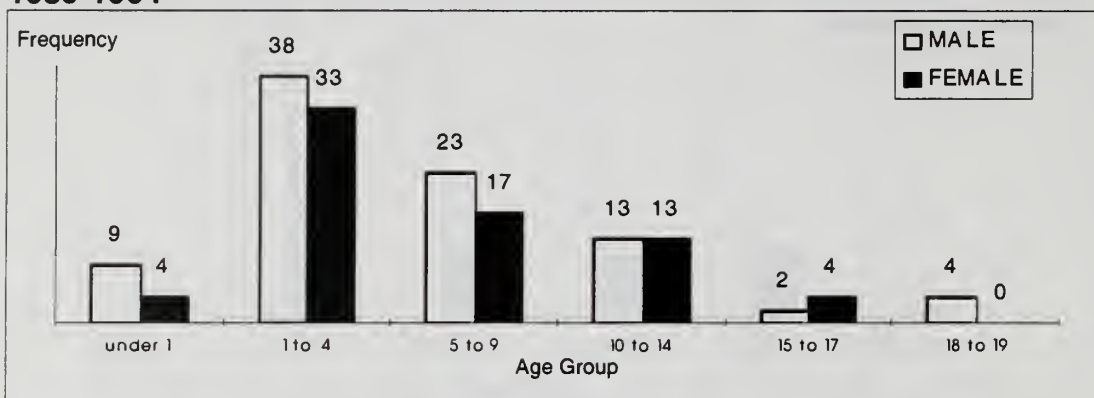
## Fire and Burn Fatalities Massachusetts Children and Youth, Ages 0-19 1985-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- A total of 160 youths died from fires and burns over the ten year period. The number ranged between 8 and 23 fatalities per year in recent years.
- Nearly half of fatal fires were characterized by clusters of 2, 3, or 4 fatalities in a single fire.

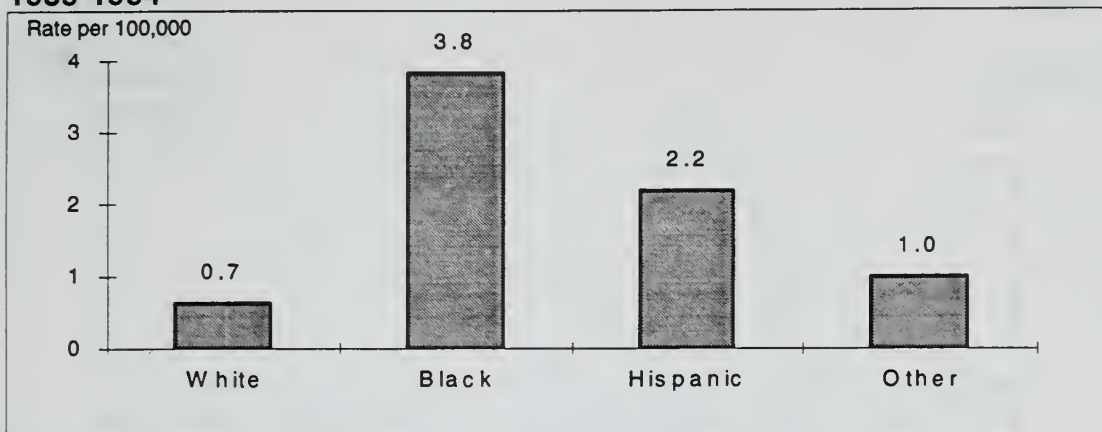
## Fire and Burn Fatalities by Age and Gender Massachusetts Children and Youth, Ages 0-19 1985-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Over half of fire and burn fatalities were male.
- Most fire related fatalities occurred among children ages 1 to 4.

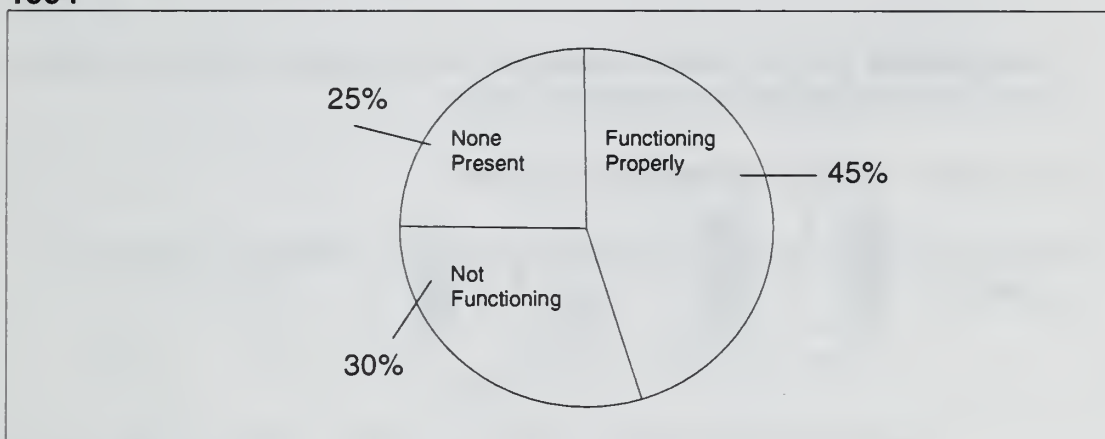
### Fire and Burn Fatality Rates by Race / Ethnicity Massachusetts Children and Youth 1989-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- The rate of fire fatalities was over five times higher among black youths than white youths, while the fatal injury rate for Hispanic youths was three times that of white youths.

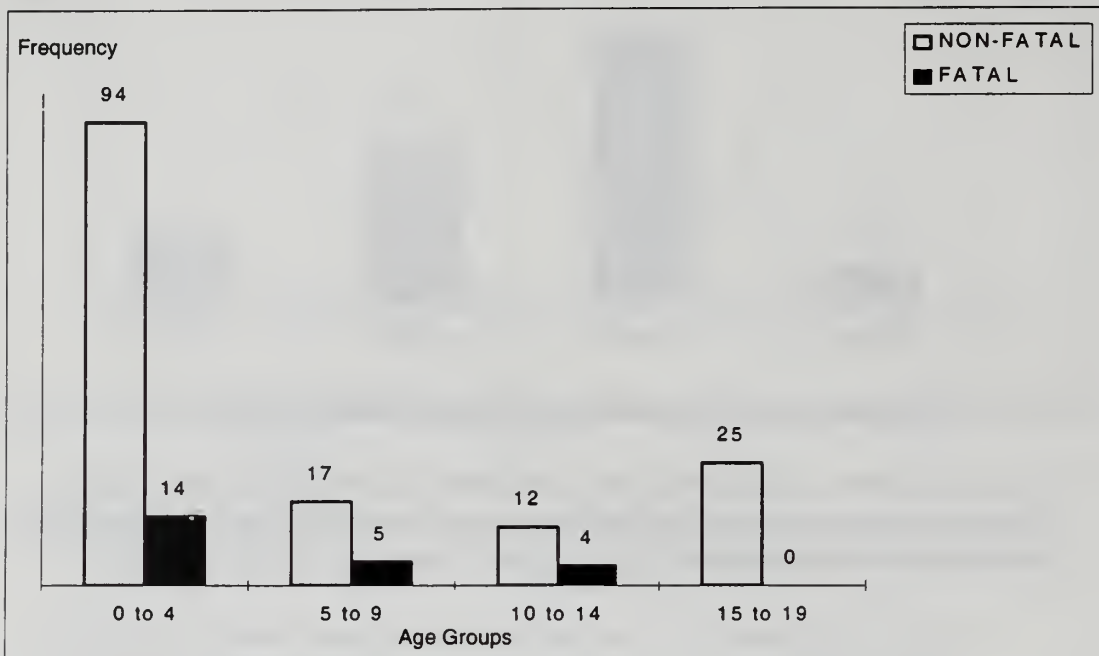
### Smoke Detector Functioning Status Fires in Massachusetts with Child Fatalities 1994



Source: Office of the State Fire Marshal

- In more than 50% of fatal fires in 1994, there were no properly functioning smoke detectors in the building.
- At least 8 fatal fires in 1994 were caused by children playing with matches or lighters.

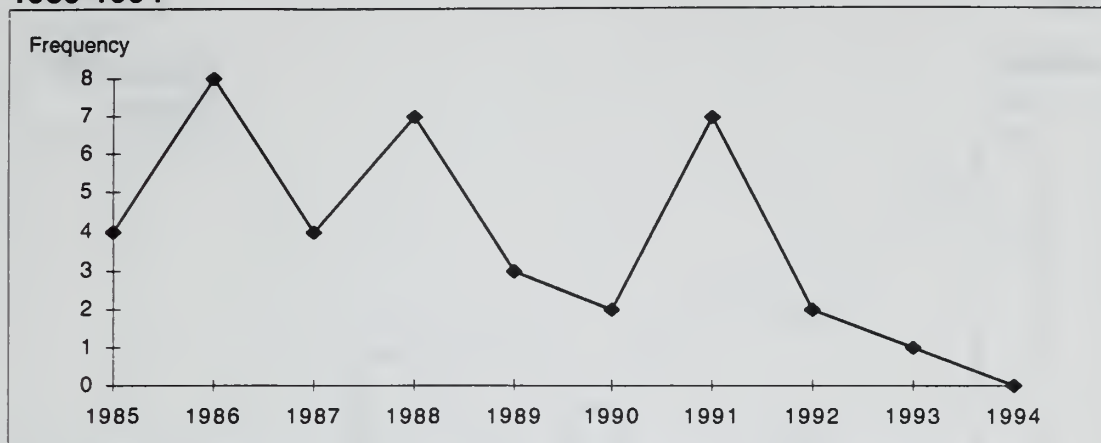
**Non-Fatal and Fatal Fires and Burns by Age  
Massachusetts Children and Youth, Ages 0-19  
1994**



Sources: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics  
Massachusetts Division of Health Care, Finance, and Policy

- While 23 fatal fire/burn injuries occurred among youth in 1994, there were 148 hospitalizations for non-fatal fire injuries.
- For every 1 fatality, over 6 injuries occurred.
- Nearly two-thirds of non-fatal injuries occurred in children 4 years old or younger.

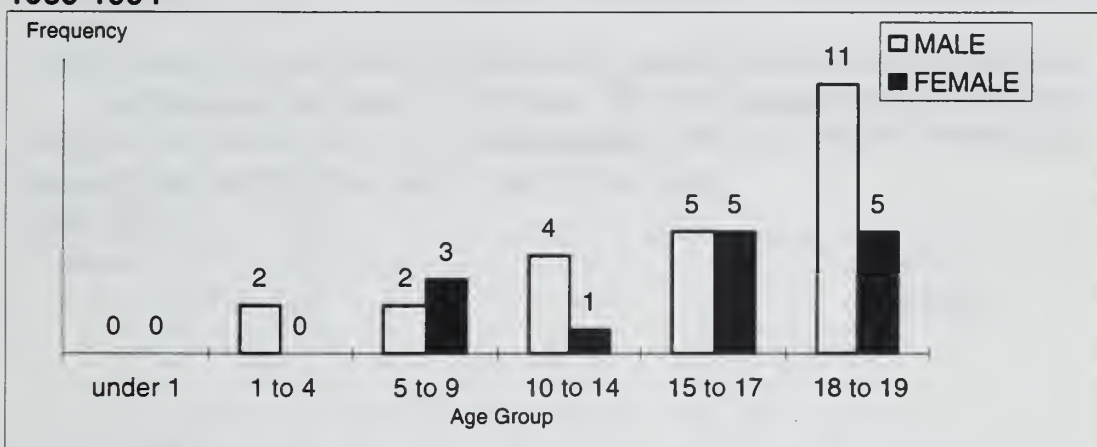
### Unintentional Poisoning Fatalities Massachusetts Children and Youth, Ages 0-19 1985-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Unintentional poisoning fatalities in youth slowly declined over the past ten years. No fatalities from poisoning occurred in 1994.

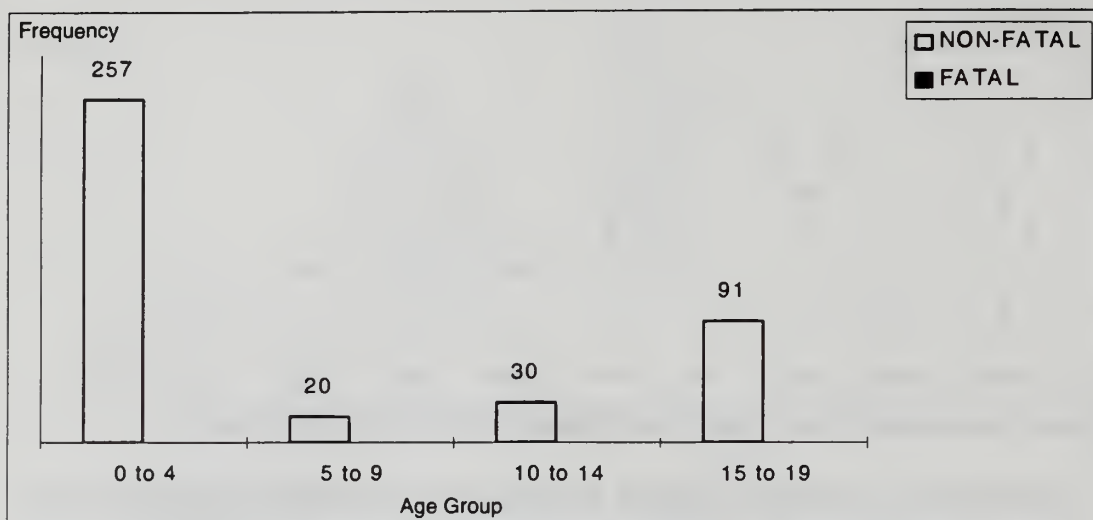
### Poisoning Fatalities by Age and Gender Massachusetts Children and Youth, Ages 0-19 1985-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Nearly two-thirds of unintentional poisoning fatalities occurred in males.
- No infants under age one died from poisoning during the 10 year period.
- Two-thirds of fatalities were over age 15.

**Non-Fatal and Fatal Poisonings  
Massachusetts Children and Youth, Ages 0-19  
1994**

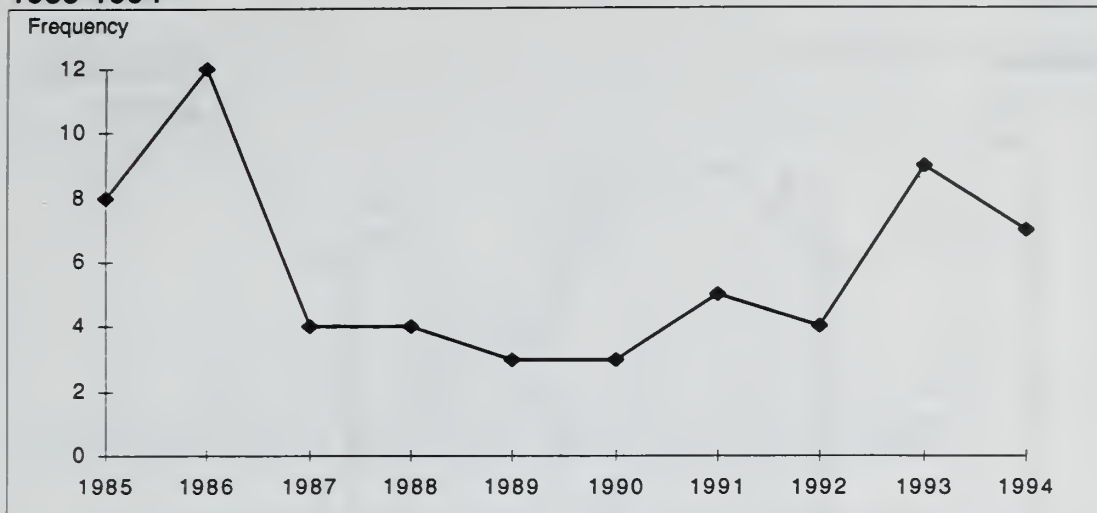


Sources: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics  
Massachusetts Division of Health Care, Finance, and Policy

- While there were no poisoning fatalities among youth in 1994, there were 398 hospitalizations for non-fatal poisonings.
- Unlike the trend in fatal poisonings over the 10 year period (in which 60% occurred in youths ages 15 to 19), over 60% of non-fatal poisonings occurred in children less than 5 years old.



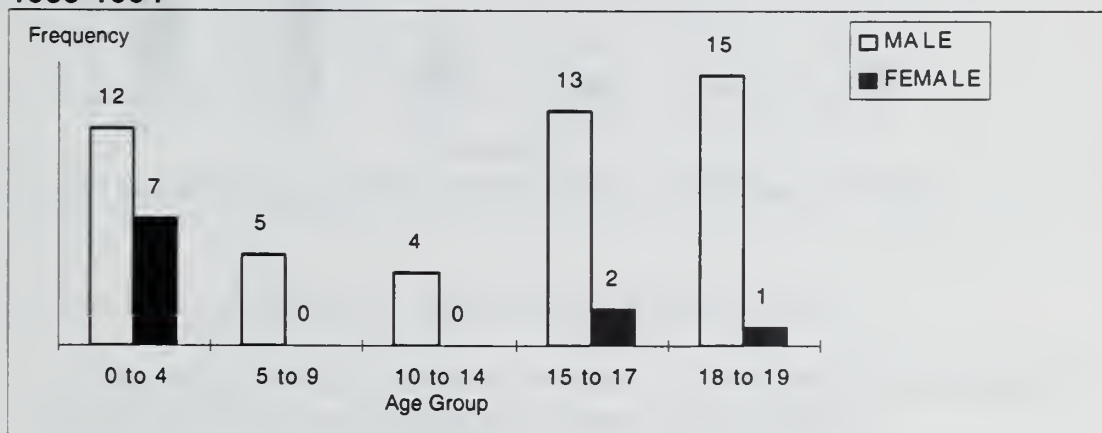
### Fall Related Fatalities Massachusetts Children and Youth, Ages 0-19 1985-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- During the 1985-1994 period, 59 youths died from unintentional fall related injuries.
- After a peak of 12 fatalities in 1986, the annual number of fall related fatalities declined for six years. However, these number increased in 1993 and 1994.

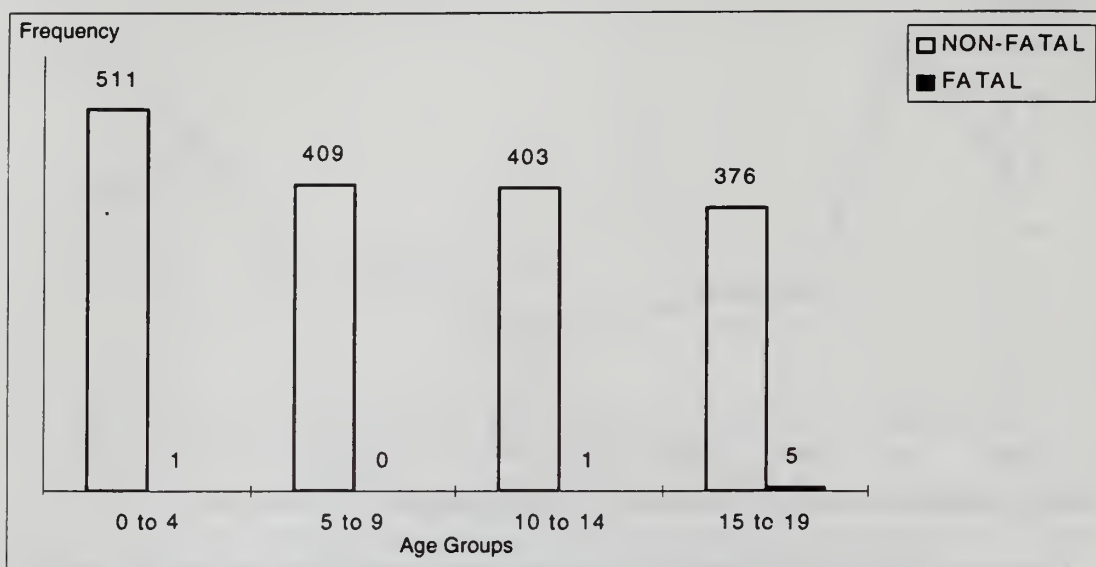
### Fall Related Fatalities by Age and Gender Massachusetts Children and Youth, Ages 0-19 1985-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Over eighty percent of youths who died in fall related injuries were male.

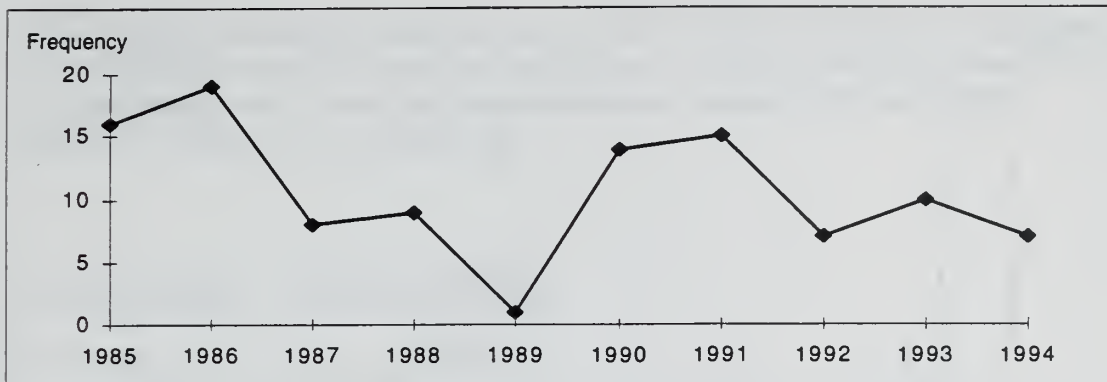
**Non-Fatal and Fatal Fall Related Injuries  
Massachusetts Children and Youth, Ages 0-19  
1994**



Sources: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics  
Massachusetts Division of Health Care, Finance, and Policy

- While 7 fall related fatalities occurred in 1994, there were 1,697 hospitalizations for fall related injuries among youths

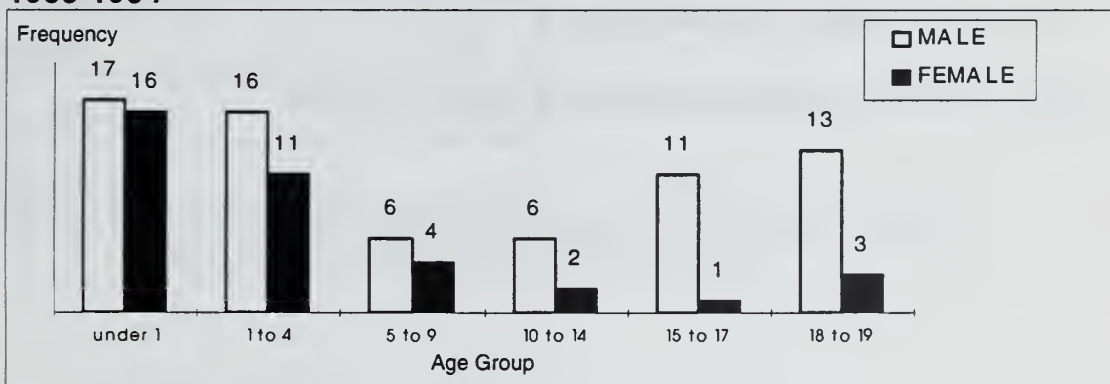
### Suffocation Fatalities Massachusetts Children And Youth, Ages 0-19 1985-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Unintentional suffocation fatalities have slowly declined, from nearly 20 per year in the mid-1980's to less than 10 in 1994.

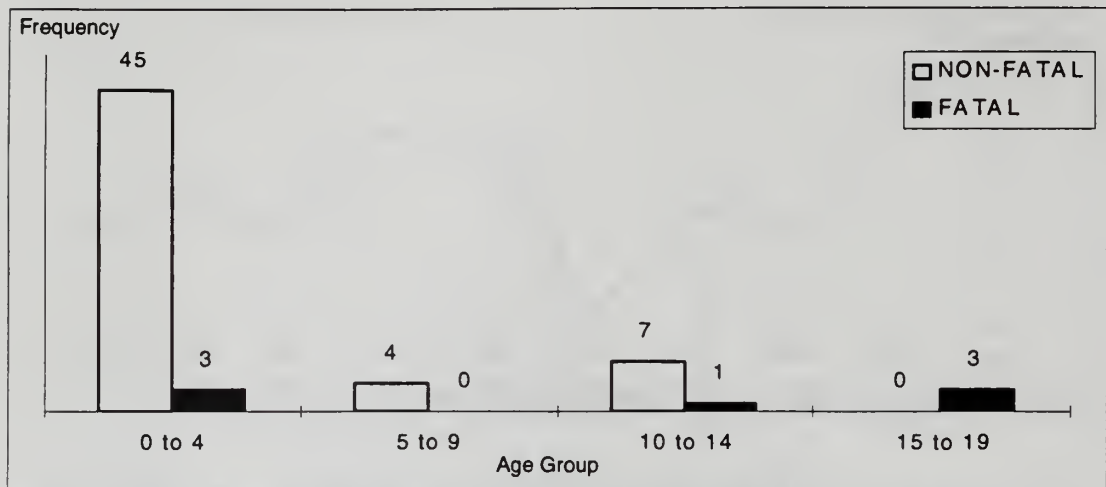
### Suffocation Fatalities by Age and Gender Massachusetts Children and Youth, Ages 0-19 1985-1994



Source: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics

- Two thirds of suffocation fatalities were among males.
- Among males, most suffocation fatalities occurred among children age 4 and under (47%), and among youth ages 15 to 19 (36%).
- Among females, most suffocation fatalities occurred among girls age 4 and under (73%).

## Non-Fatal and Fatal Suffocation Massachusetts Children and Youth, Ages 0-19 1994



Sources: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics  
Massachusetts Division of Health Care, Finance, and Policy

- While 7 fatal suffocation injuries occurred among youths in 1994, there were 56 hospitalizations for non-fatal suffocation injuries.
- For every 1 death, 8 injuries occurred.
- Most children non-fatally injured were age 4 or younger.

**Other Non-Fatal and Fatal Injuries**  
**Massachusetts Children and Youth, Ages 0-19**  
**1994**

Some injuries resulting in death occurred with low annual frequency and were coded as "other injury" in Section II of this report. This table shows the 1994 data for fatalities and non-fatal hospitalizations caused by these "other injuries" in children 0 to 19 years old.

Cause of Injury	Fatal	Non-Fatal
Struck by object	1	499
Cutting/Piercing	0	236
Environmental	1	190
Overexertion	0	151
Foreign Body	0	142
Firearms/Explosives *	1	126
Adverse effects of care *	2	37
Machine	0	27
Legal Intervention *	0	5
Electricity	0	4

Sources: Massachusetts Dept. of Public Health, Registry of Vital Records and Statistics  
Massachusetts Division of Health Care, Finance, and Policy

\* Denotes unintentional injuries only





## **SECTION IV: APPENDICES**



**Appendix A**  
**Injury Fatalities by Cause and Age, 1986-1992**  
**United States**

CAUSE	< 1	1 - 4	5 - 9	10 - 14	15 - 19	TOTAL
<b>MOTOR VEHICLE TRAFFIC</b>	1305	5638	6973	7744	42439	64099
Occupant	1222	3350	3136	4283	35196	47187
Motorcyclist	2	14	55	377	3677	4125
Pedal Cyclist	2	94	814	1237	792	2939
Pedestrian	75	2168	2942	1805	2647	9637
<b>NON-TRAFFIC</b>						
Occupant	2	89	73	125	216	505
Pedal Cyclist	0	21	61	65	60	207
Pedestrian	35	928	191	167	443	1764
<b>FIREARM TOTAL</b>	85	640	824	3860	25476	30885
Unintentional	14	234	378	1084	1932	3642
Suicide	0	0	9	1025	8645	9679
Homicide	70	405	426	1632	14469	17002
Undetermined	1	1	11	119	430	562
<b>Drowning</b>	770	4333	1910	1813	3649	12475
<b>Fire / Flame</b>	838	4606	1985	954	991	9374
<b>Suffocation / Hanging</b>	1859	682	450	1231	3382	7604
<b>Choking</b>	1021	749	180	114	192	2256
<b>Fall</b>	195	520	155	232	925	2027
<b>Cutting / Piercing</b>	50	130	149	267	2165	2761
<b>Poison: Solid / Liquid</b>	139	279	67	248	1904	2637
<b>Poison: Gas / Vapor</b>	36	164	94	134	1575	2003
<b>Farm Machinery</b>	2	147	122	96	130	497
<b>Other</b>	2746	3331	1331	1400	3666	12474
<b>TOTAL</b>	<b>9083</b>	<b>22257</b>	<b>14565</b>	<b>18450</b>	<b>87213</b>	<b>151568</b>

Source: Injury to Children and Teenagers: State-by-state Mortality Facts  
 Johns Hopkins Center for Injury Research and Policy, 1996

**Appendix B**  
**Injury Fatalities by Intent and Age, 1986-1992**  
**US and Massachusetts**

	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		TOTAL		RATE	
	US	MA	US	MA	US	MA	US	MA	US	MA	US	MA	US	MA
Unintentional	6501	59	19185	182	13355	171	14072	163	54643	887	107756	1462	21.47	13.45
Suicide	0	0	0	0	33	0	1800	20	13591	186	15424	206	3.07	1.89
Homicide	2239	24	2726	21	1075	15	2298	28	17986	236	26324	324	5.24	2.98
Unknown Intent	343	4	346	4	102	1	280	3	993	35	2064	47	0.41	0.43
All Injury 7 years	9083	87	22257	207	14565	187	18450	214	87213	1344	151568	2039	30.2	18.76
Rate per 100,000	32.61	14.16	21.41	9.06	11.67	7.25	15.51	8.74	69.06	45.64	30.20	18.76	--	--

Source: Injury to Children and Teenagers: State-by-state Mortality Facts  
 Johns Hopkins Center for Injury Research and Policy, 1996

**Appendix C**  
**Census Information by Age and Race, 1985 - 1994**  
**Massachusetts Children and Youth**

1994	0-4	5-9	10-14	15-19
W M	185533	155870	122368	146012
W F	176428	146543	114750	143553
B M	16356	12719	10651	12283
B F	16321	12356	10552	12064
O M	30522	25645	21772	24765
O F	29843	24240	21196	24668

1989	0-4	5-9	10-14	15-19
W M	173148	160833	154707	183150
W F	164423	151967	146416	181058
B M	13745	11548	10855	12355
B F	13606	11297	10711	12292
O M	24311	20914	18115	20341
O F	23704	19872	17644	20055

1993	0-4	5-9	10-14	15-19
W M	183056	156863	128836	153440
W F	174027	147628	121083	151054
B M	15834	12485	10692	12298
B F	15778	12144	10584	12110
O M	29280	24699	21038	23880
O F	28614	23367	20486	23586

1988	0-4	5-9	10-14	15-19
W M	170671	161825	161175	190577
W F	162022	153051	152750	188559
B M	13223	11314	10896	12370
B F	13063	11086	10742	12337
O M	23068	19967	17382	19456
O F	22475	18999	16943	19173

1992	0-4	5-9	10-14	15-19
W M	180579	157855	135303	160867
W F	171626	148713	127416	158555
B M	15311	12250	10732	12312
B F	15235	11932	10616	12155
O M	28038	23753	20310	22996
O F	27387	22493	19776	22703

1987	0-4	5-9	10-14	15-19
W M	168194	162818	167642	198005
W F	159621	154136	159083	196060
B M	12700	11079	10936	12384
B F	12520	10874	10774	12383
O M	21826	19021	16651	18662
O F	21248	18125	16224	18290

1991	0-4	5-9	10-14	15-19
W M	178102	158848	141771	168295
W F	169225	149797	133750	166056
B M	14789	12016	10773	12327
B F	14692	11721	10647	12201
O M	26795	22806	19577	22111
O F	26158	21620	19066	21821

1986	0-4	5-9	10-14	15-19
W M	165717	163810	174110	205432
W F	157220	155221	165416	203561
B M	12178	10845	10977	12399
B F	11977	10662	10806	12428
O M	20584	18075	15920	17687
O F	20019	17252	15514	17408

1990	0-4	5-9	10-14	15-19
W M	175625	159840	148239	175722
W F	166824	150882	140083	173557
B M	14267	11782	10814	12341
B F	14149	11509	10679	12246
O M	25553	21860	18846	21226
O F	24931	20746	18655	20938

1985	0-4	5-9	10-14	15-19
W M	163240	164803	180578	212860
W F	154819	156306	171750	211062
B M	11656	10611	11018	12413
B F	11434	10451	10838	12474
O M	19342	17129	15189	16802
O F	18792	16379	14803	16526

M = Male; F = Female  
W = White, non-Hispanic  
B = Black, non-Hispanic  
O = Non-white, Non-black

Source: U.S. Federal Census



## Appendix D

### Fatalities Among Massachusetts Children, 1994

	Under 1		1 to 4		5 to 9		10 to 14		15 to 17		18 to 19		TOTAL
	M	F	M	F	M	F	M	F	M	F	M	F	
<b>TOTAL</b>	265	234	52	30	26	22	40	22	61	35	74	23	884
<b>NON-INJURY</b>	260	227	37	22	16	13	23	14	11	17	11	9	660
<b>INJURY</b>	5	7	15	8	10	9	17	8	50	18	63	14	224
<b>MV Occupant</b>	0	0	0	0	1	0	3	1	17	4	21	3	50
<b>Motorcycle</b>	0	0	0	0	0	0	0	0	1	0	3	0	4
<b>Bicycle</b>	0	0	0	0	0	0	1	1	0	0	1	0	3
<b>Pedestrian</b>	0	0	2	1	2	2	1	2	1	1	1	1	14
<b>Drowning</b>	1	1	3	1	2	1	2	0	3	0	0	0	14
<b>Poisoning</b>	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Fall</b>	0	0	1	0	0	0	1	0	3	0	2	0	7
<b>Fire/Burn</b>	0	2	7	5	2	3	2	2	0	0	0	0	23
<b>Suffocation</b>	2	1	0	0	0	0	1	0	1	0	2	0	7
<b>Suicide</b>	0	0	0	0	0	0	3	0	7	4	11	3	28
<b>Homicide</b>	1	2	1	1	2	2	2	0	14	5	16	4	50
<b>Other</b>	1	1	1	0	1	1	1	2	3	4	6	3	24

### Fatalities Among Massachusetts Children, 1993

	Under 1		1 to 4		5 to 9		10 to 14		15 to 17		18 to 19		TOTAL
	M	F	M	F	M	F	M	F	M	F	M	F	
<b>TOTAL</b>	298	225	55	68	21	25	42	28	68	37	67	25	959
<b>NON-INJURY</b>	289	219	41	47	11	21	18	14	20	13	13	14	720
<b>INJURY</b>	9	6	14	21	10	4	24	14	48	24	54	11	239
<b>MV Occupant</b>	1	1	0	4	1	3	0	3	14	8	14	4	53
<b>Motorcycle</b>	0	0	0	0	0	0	1	0	2	0	4	0	7
<b>Bicycle</b>	0	0	0	0	1	0	3	1	0	0	0	0	5
<b>Pedestrian</b>	0	0	1	3	3	0	2	3	4	1	4	0	21
<b>Drowning</b>	1	0	1	4	0	0	2	2	2	4	2	0	18
<b>Poisoning</b>	0	0	0	0	0	0	0	0	0	1	0	0	1
<b>Fall</b>	0	0	4	2	1	0	0	0	0	0	2	0	9
<b>Fire/Burn</b>	0	0	2	2	0	1	2	1	0	0	0	0	8
<b>Suffocation</b>	3	0	2	1	1	0	0	0	1	1	1	0	10
<b>Suicide</b>	0	0	0	0	0	0	6	1	3	4	14	1	29
<b>Homicide</b>	4	5	1	4	0	0	3	3	17	4	9	5	55
<b>Other</b>	0	0	3	1	3	0	5	0	5	1	4	1	23

Source: Registry of Vital Records and Statistics



## Appendix D (continued)

## Fatalities Among Massachusetts Children, 1992

	Under 1		1 to 4		5 to 9		10 to 14		15 to 17		18 to 19		TOTAL
	M	F	M	F	M	F	M	F	M	F	M	F	
<b>TOTAL</b>	321	248	56	52	30	26	44	17	64	29	56	20	963
<b>NON-INJURY</b>	315	243	27	46	22	14	23	7	13	12	10	7	739
<b>INJURY</b>	6	5	29	6	8	12	21	10	51	17	46	13	224
<b>MV Occupant</b>	1	0	0	2	1	3	5	2	19	8	10	5	56
<b>Motorcycle</b>	0	0	0	0	0	0	0	0	2	0	2	0	4
<b>Bicycle</b>	0	0	1	0	1	0	0	1	1	0	0	0	4
<b>Pedestrian</b>	0	0	4	0	1	1	1	1	1	1	1	1	12
<b>Drowning</b>	0	0	5	0	0	1	1	1	4	0	3	0	15
<b>Poisoning</b>	0	0	0	0	0	0	0	0	0	1	1	0	2
<b>Fall</b>	0	0	1	0	0	0	0	0	1	0	1	1	4
<b>Fire/Burn</b>	0	0	10	3	1	3	3	0	0	0	0	0	20
<b>Suffocation</b>	1	0	3	0	0	1	1	1	0	0	0	0	7
<b>Suicide</b>	0	0	0	0	0	0	4	2	6	4	9	1	26
<b>Homicide</b>	4	3	3	1	3	1	4	2	12	3	16	1	53
<b>Other</b>	0	2	2	0	1	2	2	0	5	0	3	4	21

## Fatalities Among Massachusetts Children, 1991

	Under 1		1 to 4		5 to 9		10 to 14		15 to 17		18 to 19		TOTAL
	M	F	M	F	M	F	M	F	M	F	M	F	
<b>TOTAL</b>	313	263	39	42	43	23	41	19	61	21	101	25	991
<b>NON-INJURY</b>	307	258	27	35	27	10	23	13	15	7	12	7	741
<b>INJURY</b>	6	5	12	7	16	13	18	6	46	14	89	18	250
<b>MV Occupant</b>	1	0	1	1	1	1	1	1	13	8	31	10	69
<b>Motorcycle</b>	0	0	0	0	0	0	0	0	1	0	4	0	5
<b>Bicycle</b>	0	0	0	0	2	1	4	0	0	2	1	0	10
<b>Pedestrian</b>	0	0	2	1	1	3	1	0	1	2	3	1	15
<b>Drowning</b>	2	0	1	0	3	0	2	2	4	0	3	0	17
<b>Poisoning</b>	0	0	0	0	2	2	2	0	1	0	0	0	7
<b>Fall</b>	0	0	0	1	1	0	0	0	1	0	2	0	5
<b>Fire/Burn</b>	1	0	3	1	2	1	0	0	0	0	0	0	8
<b>Suffocation</b>	2	2	3	3	1	2	0	0	0	0	2	0	15
<b>Suicide</b>	0	0	0	0	0	0	3	0	7	1	15	1	27
<b>Homicide</b>	0	1	1	0	1	3	3	3	16	1	24	4	57
<b>Other</b>	0	2	1	0	2	0	2	0	2	0	4	2	15

Source: Registry of Vital Records and Statistics

Appendix D (continued)

Fatalities Among Massachusetts Children, 1990

	Under 1		1 to 4		5 to 9		10 to 14		15 to 17		18 to 19		TOTAL
	M	F	M	F	M	F	M	F	M	F	M	F	
<b>TOTAL</b>	368	281	55	38	30	22	38	22	80	39	106	38	1117
<b>NON-INJURY</b>	361	271	34	24	19	17	19	13	21	16	16	13	824
<b>INJURY</b>	7	10	21	14	11	5	19	9	59	23	90	25	293
<b>MV Occupant</b>	1	0	2	1	2	1	2	3	21	13	33	12	91
<b>Motorcycle</b>	0	0	0	0	0	0	2	0	4	0	5	1	12
<b>Bicycle</b>	0	0	0	0	0	1	2	0	0	0	0	0	3
<b>Pedestrian</b>	0	1	4	2	3	1	0	0	2	0	2	1	16
<b>Drowning</b>	0	0	4	2	2	0	2	1	0	1	3	0	15
<b>Poisoning</b>	0	0	0	0	0	0	0	0	1	1	0	0	2
<b>Fall</b>	0	0	0	1	0	0	0	0	2	0	0	0	3
<b>Fire/Burn</b>	2	1	3	3	0	1	0	0	0	0	1	0	11
<b>Suffocation</b>	1	5	3	4	0	0	0	0	0	0	0	1	14
<b>Suicide</b>	0	0	0	0	0	0	3	2	7	1	13	2	28
<b>Homicide</b>	2	1	0	1	1	0	5	2	16	4	22	7	61
<b>Other</b>	1	2	5	0	3	1	3	1	6	3	11	1	37

Fatalities Among Massachusetts Children, 1989

	Under 1		1 to 4		5 to 9		10 to 14		15 to 17		18 to 19		TOTAL
	M	F	M	F	M	F	M	F	M	F	M	F	
<b>TOTAL</b>	396	301	64	42	31	22	43	27	78	34	108	27	1173
<b>NON-INJURY</b>	389	298	46	34	16	13	20	14	19	11	26	11	897
<b>INJURY</b>	7	3	18	8	15	9	23	13	59	23	82	16	276
<b>MV Occupant</b>	1	2	2	3	0	1	4	7	20	9	31	6	86
<b>Motorcycle</b>	0	0	0	0	0	0	0	1	7	0	4	0	12
<b>Bicycle</b>	0	0	0	0	1	0	2	0	3	0	1	0	7
<b>Pedestrian</b>	0	0	5	0	5	3	1	1	0	2	5	1	23
<b>Drowning</b>	1	0	4	1	1	2	3	0	7	0	3	0	22
<b>Poisoning</b>	0	0	0	0	0	0	1	0	0	0	2	0	3
<b>Fall</b>	0	0	0	0	2	0	0	0	1	0	0	0	3
<b>Fire/Burn</b>	2	0	2	3	4	2	4	2	2	0	1	0	22
<b>Suffocation</b>	0	0	0	0	0	0	0	0	1	0	0	0	1
<b>Suicide</b>	0	0	0	0	0	0	1	0	5	3	14	3	26
<b>Homicide</b>	2	1	4	0	0	1	3	0	11	7	10	3	42
<b>Other</b>	1	0	1	1	2	0	4	2	2	2	11	3	29

Source: Registry of Vital Records and Statistics

## Appendix D (continued)

## Fatalities Among Massachusetts Children, 1988

	Under 1		1 to 4		5 to 9		10 to 14		15 to 17		18 to 19		TOTAL
	M	F	M	F	M	F	M	F	M	F	M	F	
<b>TOTAL</b>	409	285	60	43	47	32	37	20	71	41	123	36	1204
<b>NON-INJURY</b>	401	277	39	27	20	21	19	14	16	12	16	8	870
<b>INJURY</b>	8	8	21	16	27	11	18	6	55	29	107	28	334
<b>MV Occupant</b>	1	1	2	1	1	1	6	1	29	13	37	15	108
<b>Motorcycle</b>	0	0	0	0	0	0	0	0	3	0	9	0	12
<b>Bicycle</b>	0	0	0	0	2	0	3	0	0	0	1	0	6
<b>Pedestrian</b>	0	0	6	0	2	2	2	1	2	1	5	0	21
<b>Drowning</b>	1	1	2	7	10	4	1	0	2	1	6	1	36
<b>Poisoning</b>	0	0	0	0	0	1	1	0	0	1	1	3	7
<b>Fall</b>	0	0	2	0	0	0	0	0	0	1	1	0	4
<b>Fire/Burn</b>	1	0	3	3	3	3	1	1	0	2	1	0	18
<b>Suffocation</b>	0	3	2	0	3	0	0	0	1	0	0	0	9
<b>Suicide</b>	0	0	0	0	0	0	1	1	7	6	19	3	37
<b>Homicide</b>	5	3	4	2	3	0	0	1	6	2	16	3	45
<b>Other</b>	0	0	0	3	3	0	3	1	5	2	11	3	31

## Fatalities Among Massachusetts Children, 1987

	Under 1		1 to 4		5 to 9		10 to 14		15 to 17		18 to 19		TOTAL
	M	F	M	F	M	F	M	F	M	F	M	F	
<b>TOTAL</b>	341	266	63	33	56	9	47	32	93	34	99	34	1107
<b>NON-INJURY</b>	334	257	49	25	33	5	22	15	23	10	18	10	801
<b>INJURY</b>	7	9	14	8	23	4	25	17	70	24	81	24	306
<b>MV Occupant</b>	1	2	2	0	1	1	6	6	29	11	29	13	101
<b>Motorcycle</b>	0	0	0	0	0	0	0	0	7	1	4	1	13
<b>Bicycle</b>	0	0	0	0	1	0	4	1	1	0	0	0	7
<b>Pedestrian</b>	0	0	2	0	6	2	7	6	9	2	3	2	39
<b>Drowning</b>	1	1	4	1	5	0	3	0	4	1	3	0	23
<b>Poisoning</b>	0	0	0	0	0	0	0	0	1	0	2	1	4
<b>Fall</b>	0	0	0	1	1	0	1	0	0	0	1	0	4
<b>Fire/Burn</b>	1	1	2	4	6	0	0	2	0	1	0	0	17
<b>Suffocation</b>	2	1	1	0	0	0	1	0	0	0	2	1	8
<b>Suicide</b>	0	0	0	0	0	0	2	0	9	2	19	2	34
<b>Homicide</b>	0	2	0	2	1	1	1	1	4	5	9	3	29
<b>Other</b>	2	2	3	0	2	0	0	1	6	1	9	1	27

Source: Registry of Vital Records and Statistics

## Appendix D (continued)

## Fatalities Among Massachusetts Children, 1986

	Under 1		1 to 4		5 to 9		10 to 14		15 to 17		18 to 19		TOTAL
	M	F	M	F	M	F	M	F	M	F	M	F	
<b>TOTAL</b>	374	320	68	63	41	24	37	22	132	42	106	38	1267
<b>NON-INJURY</b>	368	318	54	44	18	15	16	7	30	12	15	10	907
<b>INJURY</b>	6	2	14	19	23	9	21	15	102	30	91	28	360
<b>MV Occupant</b>	0	0	1	2	3	0	4	6	43	16	30	14	119
<b>Motorcycle</b>	0	0	0	0	0	0	1	0	5	0	7	1	14
<b>Bicycle</b>	0	0	0	0	2	0	2	1	2	0	0	0	7
<b>Pedestrian</b>	0	0	4	1	10	5	1	4	3	3	9	1	41
<b>Drowning</b>	1	0	3	1	1	0	1	1	3	1	5	0	17
<b>Poisoning</b>	0	0	1	0	0	0	0	0	2	1	3	1	8
<b>Fall</b>	0	0	2	2	0	0	1	0	3	1	3	0	12
<b>Fire/Burn</b>	1	0	0	7	2	1	0	2	0	1	0	0	14
<b>Suffocation</b>	3	1	0	1	1	1	2	0	6	0	3	1	19
<b>Suicide</b>	0	0	0	0	0	0	2	0	13	3	9	3	30
<b>Homicide</b>	1	1	0	3	0	0	3	1	9	2	11	5	36
<b>Other</b>	0	0	3	2	4	2	4	0	13	2	11	2	43

## Fatalities Among Massachusetts Children, 1985

	Under 1		1 to 4		5 to 9		10 to 14		15 to 17		18 to 19		TOTAL
	M	F	M	F	M	F	M	F	M	F	M	F	
<b>TOTAL</b>	415	331	52	60	29	20	48	37	115	41	133	43	1324
<b>NON-INJURY</b>	405	323	28	45	10	15	16	14	32	18	24	16	946
<b>INJURY</b>	10	8	24	15	19	5	32	23	83	23	109	27	378
<b>MV Occupant</b>	0	1	3	4	3	0	5	7	30	12	51	9	125
<b>Motorcycle</b>	0	0	0	0	0	0	3	0	11	2	5	1	22
<b>Bicycle</b>	0	0	1	0	1	1	4	2	2	0	0	0	11
<b>Pedestrian</b>	1	0	3	3	6	2	3	3	4	2	4	1	32
<b>Drowning</b>	1	0	4	2	5	0	4	0	4	0	2	0	22
<b>Poisoning</b>	0	0	1	0	0	0	0	1	0	0	2	0	4
<b>Fall</b>	0	0	2	0	0	0	1	0	2	0	3	0	8
<b>Fire/Burn</b>	1	0	6	2	3	2	1	3	0	0	1	0	19
<b>Suffocation</b>	3	3	2	2	0	0	1	1	1	0	3	0	16
<b>Suicide</b>	0	0	0	0	0	0	4	2	19	2	17	7	51
<b>Homicide</b>	4	2	1	1	0	0	2	2	5	3	8	5	33
<b>Other</b>	0	2	1	1	1	0	4	2	5	2	13	4	35

Source: Registry of Vital Records and Statistics



**Appendix E**  
**Non-Fatal Injury Hospitalizations Among**  
**Massachusetts Children, 1994**

CAUSE	0 - 4	5 - 9	10 - 14	15 - 19	TOTAL
<b>MOTOR VEHICLE</b>					
Occupant	53	52	63	443	611
Pedestrian	51	106	77	63	297
Motorcycle	3	3	9	56	71
Bicycle	0	34	59	23	116
Non-MV bicycle	19	57	96	34	206
Other transport	9	14	24	29	76
Off-road MV	1	5	13	20	39
Assault-related	30	9	37	279	355
Self inflicted	1	1	143	558	703
Undetermined Intent	21	8	14	81	124
Fire / burns	94	17	12	25	148
Cutting / piercing	60	65	53	58	236
Drowning	22	8	2	2	34
Electricity	1	0	0	3	4
Environmental	68	62	40	20	190
Falls	511	409	403	376	1699
Firearms / explosives	0	8	16	102	126
Foreign body	87	19	21	15	142
Legal intervention	0	0	2	3	5
Machine	6	2	5	14	27
Overexertion	8	11	31	101	151
Poisoning	257	20	30	91	398
Struck by object	79	83	151	186	499
Suffocation	45	4	7	0	56
Unspecified	38	9	21	57	125
Adverse effect	10	5	8	14	37
Missing (no E-code)	238	49	81	167	535
<b>TOTAL</b>	<b>1712</b>	<b>1061</b>	<b>1418</b>	<b>2820</b>	<b>7011</b>

Source: Massachusetts Division of Health Care, Finance, and Policy







